THE IRON TRADE REVIEW

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Very Heavy Increase in Unfilled Tonnage

Indicates Strength of Recent Buying Movement—More Interest in Exports—Rail Orders Delayed by Consideration of Specifications

The handsome increase of over 900,000 tons in unfilled tonnage of the United States Steel Corporation shows that the buying of the last few weeks of the old year was heavier than generally supposed. Following the heavy buying movement of the last two months of the year, the expected decrease in new business has come and the trade is centering its interest on watching developments as to specifications, so as to determine whether there is a genuine demand for the consumption of products ordered during the recent buying movement. Up to the present time, reports indicate that specifications are liberal in nearly all parts of the country and that prices on nearly all products are being fairly well maintained. Conditions in the central west are stronger than in the east, especially as to finished materials. Owing to the fact that many mills in the east are not well supplied with orders and are operating at little more than half capacity, some price concessions are made.

Pig Iron

Buying of pig iron has continued at a very fair rate in the central west and in some centers there is a tendency to hardening of prices. The Pittsburgh Steel Co. purchased 15,000 tons of basic for January delivery, and it is understood that the price was considerably below $12.50, valley. An Allegheny valley steel company has closed for 9,000 tons of basic for first half delivery. A Massillon steel pipe concern is inquiring for 10,000 tons of pipe iron. The Republic Iron & Steel Co. reports the sale of 10,000 tons of southern foundry for export. It is understood the price was not lower than the equivalent to domestic consumers. This sale is of significance as showing the tendency toward more extensive sale of American pig iron abroad. Recently the Tennessee Coal, Iron & Railroad Co. sold 10,000 to 15,000 tons of southern foundry grades for shipment to Austria, and at earlier dates, fair sized lots of southern basic were sold abroad.

Structural Material

The largest structural material award of the week was 11,000 tons for the Michigan Central depot, Detroit, awarded to the Jones & Laughlin Steel Co. Awards in western territory amounted to 11,950 tons, of which 9,100 tons will be used for two smelters to be erected by the Kansas City Structural Steel Co. The burning of the Equitable Life building in New York will probably revive the project for the erection of a magnificent structure on that site. About three years ago, plans for a 40-story, requiring about 25,000 tons of steel, were made, but the contract was never placed. It is expected that bids will soon be asked for 20,000 tons for the Union railroad station at Cincinnati. The contract for 4,000 tons for the Dime Savings Bank building, Detroit, will probably be placed in a few days.

Railroad Buying

The placing of the Pennsylvania railroad rail order has been delayed because specifications have not been agreed upon. A meeting was held Wednesday in Philadelphia of representatives of the railroad and the mills to consider specifications, and it is expected that the order will be placed shortly. The Pennsylvania order will probably be 150,000 tons and that of the New York Central, 180,000. The Pennsylvania lines east and west have ordered 7,000 box, hopper and gondola cars, divided among the Cambria Steel Co., the Pressed Steel Car Co., Standard Steel Car Co., American Car & Foundry Co. and the Western Steel Car Co. The order does not include any of the 70-ton cars, which the company expects to purchase. The Elgin, Joliet & Eastern railroad has ordered 500 steel cars from the Pullman Co. and 250 from the Standard Steel Car Co., and the latter company was awarded 200 refrigerating cars by the Delaware, Lackawanna & Western. It has developed that car orders placed in December were considerably heavier than reported at that time and there is a suspicion that some orders recently placed have not been announced.

Exports

Through the purchase of the plant of the Baltimore Bridge Co., Baltimore, and the establishing of a large warehouse, the United States Steel Corporation will have increased facilities for its export market. The Baltimore warehouse will be an assembling point for export shipments. A Cleveland representative of a German rolling mill has been authorized to make a three-year contract with American firms for 360,000 tons of steel in ingot form. Foreign consumers seem to be deeply impressed by the very low prices on various products that are now prevailing in the United States.

WORLD'S IRON MARKETS

Pittsburgh

Liberal Specifications Being Received —New Business Moderate.

Office of THE IRON TRADE REVIEW,
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The volume of strictly new business booked during the initial week of the year shows a slight falling off as compared with the average weekly bookings last month, but there is still a fair amount of business appearing and the mills are receiving liberal specifications. If mill orders continue at the present rate throughout the remainder of the month, shipments in January will exceed those of any single month in more than a year. Investigation shows that contracts made in the closing months of the old year involved much heavier tonnage than reported at that time, so that all of the larger mills in this section are pretty well booked for the next three or four months. The trade is more deeply interested in future developments in the way of specifications than in new business, and events of the next three or five weeks likely will give a pretty good line on what can be expected during the first half of the year. The semi-finished steel market is showing a stronger tone than in months and in a few instances buyers have complained of not being able to obtain prompt shipment against contracts.

Contracts placed during the week by the Pennsylvania system lines east and west of Pittsburgh involve at least 7,000 freight cars and in some quarters it is stated that the company quietly closed for a much larger number, the orders being pretty evenly distributed among the larger car companies. Rail mills now have a fair idea of the 1912 steel rail tonnage that they will receive from the larger trunk lines, although the awards have not been officially announced. Rail orders of the leading roads likely will be slightly above those of last year. The largest sale of pig iron involves 15,000 tons of basic to the Pittsburgh Steel Co. for January shipment, and an Allegheny valley steel company is reported to have closed for about 9,000 tons of basic for first half delivery. Prices on all finished lines, except merchant pipe and boiler tubes, appear to be very firm and at least one large independent company has followed the action of the leading interest in advancing the price of steel bars and plates to 1.20c, Pittsburgh, although 1.15c, Pittsburgh, can still be done. Reports published early in the week that manufacturers had advanced the price of wire products $1 a ton, effective Monday, proved to be untrue. Prices on several grades of scrap are higher and the railroads realized higher prices this month than in November and December.

Pig Iron.—While the pig iron market is not as active as in December, moderately heavy tonnage has changed hands during the past week, but little information has leaked out concerning the price paid in some of these transactions. The Pittsburgh Steel Co. during the week, closed for about 15,000 tons of basic iron for delivery at Monessen, Pa., in January, the bulk of which will come from an Ohio river valley furnace and the remainder from a valley producer. The price paid is understood to be considerably under $12.50, valley. There appears to be little foundation for the report that the company has closed for from 12,000 to 15,000 tons of basic a month for the five months beginning Feb. 1. An Allegheny valley steel company is understood to have closed for about 9,000 tons of basic iron for first half delivery at slightly under $12.50, valley. Some producers are quoting slightly higher prices, but the basic market is still unsettled. A local casting interest has entered the market for 2,000 tons of Bessemer iron for delivery in January and February. This market appears to be very firm at $14.25, valley. Scattered sales of foundry grades, involving from 500 to 2,000 tons each, have been made during the week and a shortage of this grade is reported in some quarfers. On some recent sales of No. 2 for immediate shipment $13, valley, has been done, while one or two producers are now quoting $13.50, valley, for prompt and first half shipment. Trading in malleable and gray forge iron has been comparatively light. Shipments against contracts show a slight gain during the first week of the new year. Several steel companies have recently extended blast furnace operations, and the Carnegie Steel Co. is now operating 44 of its 59 blast furnaces. Other non-merchant stacks will be blown in this month. It is unofficially stated that the Jones & Laughlin Steel Co. will blow in one or two of its Aliquippa stacks within the next 30 days. We quote the market as follows:

(Prompt Shipment.)

Bessemer, valley	$14.25
Bessemer, Pittsburgh	15.15
Basic, valley	12.40
Basic, Pittsburgh	13.30
No. 2 foundry, Pittsburgh	13.90
Gray forge, Pittsburgh	13.65
Malleable, Pittsburgh	13.65

(First Quarter.)

Bessemer, valley	$14.25
Bessemer, Pittsburgh	15.15
Basic, valley	12.40
Basic, Pittsburgh	13.30
No. 2 foundry, Pittsburgh	13.25
Gray forge, Pittsburgh	13.65
Malleable, Pittsburgh	13.65

Ferro-Alloys.—There is a fair amount of inquiry for ferro-manganese for first half delivery. A few odd lots of resale material have been sold slightly under $41, seaboard, which now represents the market level. The leading interest has not yet closed on its inquiry for 6,000 tons of 50 per cent ferro-silicon, and this market is rather quiet. Prices on the lower grades of domestic ferro-silicon are not very firm.

We quote ferro-manganese nominally at $41, Baltimore, for prompt and forward delivery. The freight rate from Baltimore to Pittsburgh is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $70, Pittsburgh, for prompt and forward delivery; 12 per cent, $22.50 to $23; 11 per cent. $21.50 to $22; 10 per cent, $20.50 to $21, f. o. b. Globe, Jisco and Ashland furnaces. The freight rate to Pittsburgh is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

Plates.—The chief event in this market during the week has been the buying of cars by the Pennsylvania system lines east and west of

Pittsburgh. It is known that so far orders have been placed for at least 7,000 box, hopper and gondola cars, and in some quarters it is stated that purchases to date involve a much larger number of cars. Orders placed by the Pennsylvania system during the week were pretty evenly distributed among the Cambria Steel Co., Pressed Steel Car Co., Standard Steel Car Co., American Car & Foundry Co. and the Western Steel Car Co. The fact that these awards did not include any 70-ton cars designed by the company's engineers indicates that the company will place additional contracts later. Statistics show that orders placed in 1911 aggregated approximately 136,000 cars of various types and that at the beginning of the year the car builders had orders on their books for about 75,000 cars. It has also developed that car orders in December were considerably heavier than reported at that time. The Western Maryland Railroad Co. is expected to close in the very near future for 2,500 freight cars of various types. It is also expected that definite action will be taken shortly on contracts for the two proposed new United States government battleships, which will require 27,600 tons of plates and other material. One independent company has followed the action of the leading interest in advancing its price to 1.20c, Pittsburgh, on plates, but 1.15c, Pittsburgh, can still be done. Plate manufacturers having long term contracts with car builders are operating practically full. We quote the market as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.15c to 1.20c. Extras are as follows, per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½ inch to and including ⅜-inch plate on thin edge, 0.10c; under ⅜ and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Sheets.—The first week in the new year has brought out heavy specifications against contracts previously made for sheets, and present indications are that production in January will exceed that of December, which has been the best month in 1911 from a tonnage standpoint. Some of the independents are operating to capacity, and the leading interest has started its Mercer plant and other sheet mills which have been idle for a long time. There is less talk of price concession, and the market apparently is firm at the higher prices announced in December. Practically all mills are limiting contracts at today's prices to from 60 to 90 days. We quote the market as follows, with $1 a ton added as the delivered price in the Pittsburgh district.

Blue annealed sheets No. 10 gage, 1.40c; black annealed sheets No. 28 gage, 1.90c; galvanized sheets, No. 28 gage, 2.90c; painted roofing sheets, $1.35 per square for No. 28 gage, 2½-inch corrugation; galvanized roofing sheets, $2.45 per square for No. 28 gage, 2½-inch corrugation, f. o. b. Pittsburgh.

Tin Plate.—Tin mill operations have been extended during the past week and upward of 80 per cent of the mills of the leading interest and independents are now in service. The Jones & Laughlin Steel Co. late last week placed in service its second unit of 12 tin mills at Aliquippa, and is now operating 24 tin mills at that place. Three or four other large independents are operating full time. Practically all of the larger buyers of tin plate are now under contract for first half requirements and present indications are that production in this period will be extremely heavy as liberal specifications have been received. We quote the market as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.40 f. o. b. mill, Pittsburgh district.

Rails and Track Material.—Progress is reported in negotiations between the railroads and steel rail manufacturers concerning steel rail specifications for 1912 delivery, and it is expected that announcement will be made within the next week or ten days of the allotment of the 1912 rails by some of the leading trunk lines, including the Pennsylvania and the New York Central systems. It is stated officially that the requirements of some of the larger systems will be considerably in excess of the tonnage contracted for delivery in 1911. There is a good demand for light rails, several large contracts having been placed during the past three weeks. Demand for railroad spikes is fair, but it is not likely that the larger roads will cover for their requirements until orders for steel rails are actually placed. The market is quoted as follows, the base price on open-hearth steel rails being 1.34c per pound at the mill.

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, 1.16c, the schedule on the other weights being irregular and subject to negotiations; angle splice bars for standard sections, 1.50c, Pittsburgh; track bolts, 2.20c to 2.25c, Pittsburgh.

Railroad Spikes.

4½, 5 and 5½ and 9/16	$1.40
3, 3½, 4, 4½ and 5 x ½	.10
3½, 4 and 4½ x ⅝	.20
3, 3½, 4 and 4½ x ¾	.30
2½ x ⅜	.40
2½, 3 and 3½ x ⅝	.60
2 x ⅝	.80

Steel.—Practically all of the larger semi-finished steel mills in this section are operating to capacity, and the smaller mills are gradually being filled up. In several instances, users are complaining of being unable to obtain prompt shipment against contracts previously placed. The Columbus plant of the Carnegie Steel Co., which has been idle for a long time and which is used only in times of prosperity, will be placed in operation some time this month. Prices are very firm, and some manufacturers have practically withdrawn from the market, having all the business they can handle for the next few months. The first steel was made this week at the new open-hearth plant of the Jones & Laughlin Steel Co., at Aliquippa, when one of the four open-hearth furnaces was started. One or two manufacturers of forging billets who have advanced the price to $28, Pittsburgh, are practically out of the market. Quotations on billet and sheet bars follow.

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $20, with the usual extras for size and analysis, and open-hearth rolling billets, $20, Bessemer sheet and tin bars are quoted at $21, and open-hearth sheet bars are quoted at $21 f. o. b. Pittsburgh or Youngstown, with full freight to destination added. Forging billets are quoted at $26 to $28, Pittsburgh.

Hoops and Bands.—Users of hoops and bands are specifying rather liberally, but there is not a great deal of new business appearing. Prices are firm. We quote the market as follows:

Hoops in carload lots, 1.30c, Pittsburgh; in less than carload lots, 1.40c; bands, 1.15c to 1.20c, base, with net extras, as per standard steel.

Merchant Bars.—Some of the leading manufacturers of steel bars have practically all the business on their books that they can take care of during the next 30 to 60 days, and are now quoting slightly higher prices, although 1.15c, Pittsburgh, can still be done. One large independent company is now quoting 1.20c, Pittsburgh, and has taken some second quarter business at this figure. Prices on bar iron have stiffened, and 1.35c, Pittsburgh, now represents the general asking price of mills in this section. Specifications against contracts

for shafting are coming in more freely, and some fresh buying is reported. We quote the market as follows:

Common iron bars, 1.35c, Pittsburgh; Bessemer and open-hearth steel bars, 1.15c to 1.20c; plow and cultivator, 1.25c; channels, angles, zees, tees, under 3 inch, 1.25c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds of a size, 0.35 advance. Cold rolled and ground shafting, 65 per cent off in carloads and 60 and 10 per cent in less than carloads, delivered in base territory.

Muck Bars.—We note a sale of 750 tons of muck bars at $29, Pittsburgh. There is very little inquiry coming out. We quote muck bar at $28 to $29, Pittsburgh.

Structural.—Despite recent activity in this market, low quotations are still being made by some fabricating interests. A large amount of construction work is being figured upon for the early spring months, but there is not a great deal of new work appearing in the immediate Pittsburgh district at this time. The contract for 40,000 tons of structural steel for the approaches for the Hell Gate bridge, for which the McClintic-Marshall Construction Co., Pittsburgh, has the general contract, has not been awarded. Bids have gone in on a proposed new bank building, Detroit, involving 4,000 tons, and the Carnegie Technical School addition, Pittsburgh, involving 700 tons. It is expected that bids will be asked in the next few weeks for about 20,000 tons of steel to be used in the construction of the proposed Union railroad terminal at Cincinnati. We quote the market as follows:

Beams and channels, 15 inches and under, zees, 1.15c to 1.20c; tees, 1.15c to 1.20c; angles, from 3 to 6 inches, 1.15c to 1.20c; over 6 inches, 1.25c; universal and sheared 1.15c to 1.20c; over 15 inches, 1.25c to 1.30c, plates, 6¼ inches wide and wider, 1.25c.

Merchant Pipe.—Reports circulated in December that prices on merchant iron and steel pipe would be revised upward early in the new year have not materialized, and there is no indication at this time that prices will be advanced in the near future. Manufacturers are quoting today's prices for first quarter delivery and price concessions have been made by some mills on business for immediate delivery. The jobbing trade is specifying a little more freely and mills are operating on a slightly better schedule than at this time last year. Some fairly large inquiries for steel line pipe are pending, but no awards of importance have been made in this territory. We quote the following official discounts in carload lots, subject to the usual preferential discount to the larger buyers, merchant pipe, where specified, being offered in from ⅛ to 6 inches:

Iron and Steel Pipe Basing Prices

	Steel.		Iron.	
	Butt weld.			
	Black.	Galv.	Black.	Galv.
⅛, ¼ inch	74	54	68	48
⅜ inch	75	65	69	59
½ inch	78	68	72	62
¾ to 1¼ inch	81	73	75	67
2 to 3 inches	82	75	76	69
	Lap weld.			
2 inches	79	72	72	65
2½ to 4 inches	81	72	74	67
4½ to 6 inches	80	72	73	65
7 to 12 inches	77	68	71	61
13 to 15 inches	55	..	47	..
Extra Strong, Plain Ends.				
	Butt weld.			
⅜, ¼, ⅜ inch	70	60	65	55
½ inch	75	69	70	64
¾ to 1¼ inch	79	73	74	68
2 to 3 inches	80	74	75	69
Extra Strong, Plain Ends.				
	Lap weld.			
2 inches	76	70	71	65
2½ to 4 inches	81	74	74	67
4½ to 6 inches	77	71	72	66
7 to 8 inches	70	60	65	55
9 to 12 inches	65	55	60	50
Double Extra Strong, Plain Ends.				
	Butt weld.			
½ inch	65	59	60	54
¾ to 1¼ inch	68	62	63	57
2 to 3 inches	70	64	65	59
Double Extra Strong, Plain Ends.				
	Lap weld.			
2 inches	66	60	61	55
2½ to 4 inches	68	62	63	57
4½ to 6 inches	67	61	62	56
7 to 8 inches	60	50	55	45

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

Boiler Tubes.—Conditions surrounding the market on merchant and locomotive boiler tubes continue unsatisfactory. Owing to the light buying of locomotives, specifications against contracts for boiler tubes by locomotive builders have been extremely light. Manufacturers of steel boiler tubes have not issued a new price card, but some mills are quoting 2½ points, or $5 a ton, under the following official card. In addition, 5 and 5 off are granted up to April 1, and 5 off to July 1. We quote official discounts of steel and charcoal iron boiler tubes as follows:

Steel:

1¾ to 2¼ inch	65
2½ inch	67½
2¾ to 3¼ inch	72
3½ to 4½ inch	75
5 and 6 inch	67½
7 to 13 inch	65

Charcoal Iron:

1½ inch	48
1¾ to 2¼ inch	50
2½ inch	55
2¾ to 5 inch	60

To destination east of Mississippi river will be sold at delivered discount for carloads lowered by 2 points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire Products.—Published reports that the leading interests and independents had advanced prices on wire productions $1 a ton, effective Jan. 8, proved to be untrue. It is understood, however, that manufacturers are considering another advance of $1 a ton, to become effective some time this month. There has been a fair amount of buying by jobbers, and specifications are fair. There is a moderate demand for cut nails, and no sales have been reported below $1.50, Pittsburgh, in jobbers' carload lots. We quote the market as follows:

Wire nails, jobbers, carload lots, $1.55; retailers' carload lots, $1.60; cut nails (western makers), jobbers' carload lots, $1.50; painted barb wire, jobbers' carload lots, $1.55; retailers' carload lots, $1.60 with 30c for galvanizing; plain wire to jobbers in carloads, $1.35; and to dealers, in carloads, $1.40; polished staples, $1.55; galvanized staples, $1.85.

Wire Rods. — Most of the larger users of wire rods have covered for first quarter requirements. Specifications are coming in a little more freely, and some mills are asking slightly higher prices. We quote $24.50 to $25, Pittsburgh, for Bessemer and open-hearth wire rods.

Coke.—Demand for prompt furnace coke is heavy, as a result of the extention of non-merchant blast furnace operations. We note sales aggregating 4,000 tons of Connellsville furnace coke for prompt shipment at $1.80, ovens, and an advance minimum quotation of 5 cents, as users have been unable to pick up spoe coke at $1.75, ovens. Producers are asking higher prices for contract coke, the minimum now being $1.85, ovens, although no sales have been reported so far at this figure. Early in December, furnace coke was sold for first half at $1.60 to $1.65, ovens. Several contracts for foundry coke, which expired Dec. 31, have been renewed to cover first half. On standard Connellsville furnace coke, contracts have been made at from $2.00 to $2.40, ovens, the latter figure representing the asking price of one or two producers. A shortage of labor is reported in some sections of the Connellsville region. The H. C. Frick Coke Co., which started 1,500 ovens last week, has given orders to start 500 additional ovens this week, while the Rainey Coke Co., which is now operating 2,200 ovens, is expected to operate all of its 3,000 ovens within the next week or so. We quote Standard Connellsville furnace coke for prompt shipment at $1.80, ovens, and on contract, $1.80 to $1.85, ovens. On high grade Connellsville foundry coke, we quote from $2.00 to $2.10, ovens, for prompt shipment, and $2.10 to $2.40, ovens, for forward delivery. The Connellsville *Courier's* figures for the week ending Dec. 30, show 26,403 active ovens, with an output of 294,189 tons, compared with 26,230 active ovens, and a production of 318,685 tons the previous week.

Old Material. — Consumers of old material are accepting heavier shipments against contracts and fresh buying is moderately heavy, although shipments of heavy melting steel are still being held

up by one or two of the larger buyers. The railroads realized the higher prices on their offerings this month, and prices on several grades are higher. Selected grades of heavy melting steel have sold as high as $13, delivered, Pittsburgh district, although on the general run of this grade of material mills are not bidding higher than $12.75. We note an advance of 50 cents a ton on bundled sheet scrap, No. 1 wrought scrap, old car wheels, low phosphorus, cast borings; an advance of 75 cents a ton on machine shop turnings, and $1 a ton on iron axles. We quote, gross tons, delivered in the Pittsburgh district, including Monessen, Sharon, Steubenville, Brackenridge and Follansbee, as follows:

Heavy melting scrap	$12.25 to 12.75
Rerolling rails	12.75 to 13.00
Malleable	12.00 to 12.50
Bundled, sheet scrap	11.00 to 11.50
Iron axles	21.50 to 22.00
Old iron rails	15.00 to 15.50
Stove plate	9.00 to 9.50
No. 1 wrought scrap	13.00 to 13.50
Old car wheels	13.00 to 13.50
Low phosphorus	15.00 to 15.50
Machine shop turnings	10.00 to 10.50
Cast borings	9.50 to 9.75
No. 1 cast scrap	13.00 to 13.50

Chicago

Satisfactory Orders for Finished Material.—Charcoal Iron Disturbed.

Office of THE IRON TRADE REVIEW, 1328 Monadnock Blk., Jan. 9.

Sales during the first week in January indicate that the market will make a much more favorable showing in the west this year than it did a year ago. The chief danger in the situation is that prices of finished materials may be advanced too rapidly and produce a top-heavy market. Orders for plates, structurals, bars, sheet and in fact all products except rails, continue to be exceptionally satisfactory. The Elgin, Joliet & Eastern has placed an order for 500 cars with the Pullman Co. and for 250 with the Standard Steel Car Co. The Minnesota, Dakota & Western Railway has ordered 2,000 tons of standard rails from the Illinois Steel Co. The Kansas City Structural Steel Co. has taken two large fabricating contracts from Arizona mining concerns, which will require 9,100 tons of structural material. The Chicago scrap market is hesitating and sales are very limited.

Pig Iron.—The demand for northern iron is very satisfactory and sales have been good. A prominent interest having furnaces in this territory reports that its sales during the first six days of January this year were equal to the entire January sales in 1911. There is a strong movement on the part of the Southern furnaces to obtain an advanced price for first half shipment and for this delivery the market may be fairly quoted at $14.60, Chicago, while some interests which are well sold up are asking $14.85. An Indiana car builder has purchased 6,000 tons of malleable for first half shipment. The American Brake Shoe & Foundry Co. is in the market for 1,000 tons of 6 to 7 per cent silicon iron for shipment to its Chicago plant and for 250 tons of foundry iron for consumption at Minneapolis. An Indiana sewing machine manufacturer has purchased 1,000 tons of No. 1 iron, especially low in sulphur, for first half shipment from a Chicago furnace. This business was placed on a basis of $14.75 at the furnace, which indicates that the northern melters are obtaining full differentials at the present time. The market for charcoal iron is disturbed, due to the continued pressure to sell on the part of makers having large quantities of iron of miscellaneous grades on hand. It is possible, therefore, to obtain charcoal iron as low as $15, Chicago, but quotations recently received by a leading consumer in this district, for its first half requirements of No. 1 Lake Superior charcoal, were on a basis of $16.50, delivered f. o. b. Chicago. Some Michigan furnaces are quoting their best grade at $15, furnace, equivalent to $16.75, Chicago.

The following prices represent the market for Chicago delivery, except northern foundry and malleable Bessemer made in local furnaces, which are quoted f. o. b. furnace:

(First Half Shipment.)

Lake Superior charcoal	$16.50
Northern foundry No. 2	14.00
Southern foundry No. 2	14.60
Southern silveries, 5 per cent silicon	15.60
Jackson Co. silveries, 8 per cent	17.40
Malleable Bessemer	14.00
Alabama basic	14.35

Billets.—The market is moderately active and showing considerable strength. Some independent mills are quoting strictly on a basis of $28, Pittsburgh, equivalent to $30.60, Chicago. Local mills, however, are willing to shade these figures and open-hearth forging billets may be obtained in this market as low as $26. We quote, open-hearth forging billets, $26, Chicago; re-rolling billets, $22.60.

Merchant Bars.—Specifications for steel bars have been heavy during the past week and new orders continue good. Business, however, is not sufficiently extensive to have much effect on the price situation. Soft steel bars are being sold for first quarter delivery at 1.25c, Chicago, with occasional contracts at 1.28c. Attempts to hold the market strictly on a basis of 1.15c, Pittsburgh, seem to have failed, although at least two independent mills represented in this territory are maintaining this figure. The hard steel mills have not enjoyed the increase in business which is true of other lines and re-rolling mills in this territory are still operating at about 50 per cent of their capacity. Prices on hard steel remain unchanged, although we note occasional orders at 1.20c, Chicago, which is $1 a ton above ruling quotations. On account of the large amount of car business placed in the west recently, bar iron mills are busy and the price of this commodity has stiffened appreciably. Current quotations are 1.15c to 1.20c, Chicago, with considerable business going at 1.17c. Shafting is moderately active.

We quote for Chicago delivery as follows:

Bar iron, 1.15c to 1.20c; hard steel bars, rerolled, 1.15c to 1.22c; soft steel bars, bands and small shapes, 1.25c to 1.33c, base; hoops, 1.48c; smooth finished machinery steel, 1 inch and larger, 1.78c; shafting 60 per cent off list for carload lots, 55 per cent off for less than carloads.

On iron and steel from local stock, we quote as follows:

Bar iron, 1.50c to 1.60c per pound base; soft steel bars, 1.50c to 1.60c per pound base; soft steel hoops, 1.80c to 1.90c, full extras.

Structural Material.—Western makers would like to see more activity in the structural market and the first week of the year has fulfilled these hopes, but it is doubtful if the pace can be maintained. Fabricating contracts reported in the west during the past week total 11,950 tons. The two largest awards were taken by the Kansas City Structural Steel Co., which obtained a contract for a smelter at Douglas, Ariz., 5,600 tons, from the Calumet & Arizona Mining Co., and also for another smelter at Clifton, Ariz., 3,500 tons, from the Arizona Copper Co. The American Bridge Co. has taken 1,251 tons of bridge material from the Burlington and 178 tons for the Keesing hotel, San Francisco, Cal. The Coast Bridge Co. has let a contract for three riveted spans at Libby, Mont., and also for three riveted spans at Troy, Mont., for which 241 tons will be required, and the Cobb-Healy Investment Co., Seattle, Wash., has let 407 tons for a new building. Other structural con-

tracts reported in the west are as follows: Iowa State Bank, Burlington, Ia., 512 tons, to Noelke-Richards; theater building, James Q. Clemmer, Seattle, Wash., 134 tons, to the Moran Co., Seattle; and an office building, Mrs. E. J. Benedict, San Francisco, 127 tons, to Milliken Bros.

We quote, structural material, f. o. b. Chicago, as follows.

Beams and channels, 15 inches and under, 1.30c to 1.38c. For extras, see Pittsburgh report.

Plain material, out of store, is as follows.

All angles, 3 inches and larger, including 6 inches, $1.60 to $1.65 per 100 pounds; angles over 6 inches, $1.70 to $1.75 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.60 per 100 pounds, base; channels, 3 inches and larger, $1.60 per 100 pounds, base.

Rails and Track Fastenings.—Specifications for track fastenings are exceptionally good and most orders are accompanied by urgent requests for immediate shipment, indicating that railroad warehouse stocks are low. It is understood the Great Northern has placed an order for 36,000 tons of standard rails divided between the United States Steel Corporation, the Lackawanna and the Cambria steel companies. The Minnesota, Dakota & Western has ordered 2,000 tons of standard rails from the Illinois Steel Co. and the Southern railway is reported to have placed 21,000 tons with the Tennessee Coal, Iron & Railroad Co.

We quote, light rails, f. o. b. Chicago and track fastenings, f. o. b. Joliet, as follows:

Light rails, carloads, 40 to 45-pound, 1.16c to 1.20½c; 30 to 35-pound, 1.19½c to 1.23c; 16, 20 and 25-pound, 1.20½c to 1.25c; 12-pound, 1.25c to 1.29½c.

Light section relayers, 45 pounds and under, subject to inspection, $21 to $23; standard section relaying rails, subject to inspection, $23.50 to $24.

Track fastenings, f. o. b. Joliet, angle bars, 1.50c; railroad spikes, 1.50c to 1.55c, smaller size spikes, 1.65c, base; track bolts with square nuts, 1.90c base.

Plates.—The plate situation shows no special change. Mills are choked with business and the temporary lull in fresh buying, due to the holiday season, has been rather welcome. The Elgin, Joliet & Eastern railway has ordered 500 steel cars from the Pullman Co. and 250 from the Standard Steel Car Co. The latter company has also taken 200 refrigerator cars from the Delaware, Lackawanna & Western.

We quote, f. o. b. Chicago, as follows:

Tank plates, ¼ inch thick, 6¾ to 100 inches wide, 1.30c to 1.38c. For extras, see Pittsburgh report.

Store prices are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, 1.60c.

Sheets.—While the sheet business continues good, some difficulty is found in maintaining advanced quotations and No. 2 black sheets are again quoted 2.03c, Chicago, on attractive orders. Local mills are operating practically at capacity and were not shut down on New Year's day.

We quote, store prices, f. o. b. Chicago, as follows:

Blue annealed, No. 10, 1.95c; No. 12, 2.05c. Box annealed, No. 28, 2.40c. Galvanized, No. 28, 3.35c.

For mill prices, see Pittsburgh report. Freight to Chicago, 18 cents.

Wire Products.—The market continues fairly active and December was a notably better month than November. January is starting out well. Wire nails are especially active and the agricultural districts are ordering barb wire and fencing freely.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.73; retailers' carload lots, $1.83; retailers' less than carload lots, $1.93; painted barb wire, jobbers' carload lots, $1.73; retailers' carload lots, $1.83; retailers' less than carload lots, $1.93, with 30c for galvanizing; plain wire, jobbers' carload lots, $1.53; retailers' carload lots, $1.58.

Merchant Pipe and Tubes.—Extremely severe weather during the past week has shut down practically all building operations in the city, resulting in a temporary lull in the demand for merchant pipe. December, however, showed considerable improvement over the preceding month and it is expected that January will do equally as well. Some fair sized contracts for boiler tubes have been placed during the past ten days at $4 to $5 below nominal quotations.

We quote, merchant pipe and tubes, out of stock, f. o. b. Chicago, as follows:

IRON AND STEEL PIPE BASING PRICES.

	Steel. Black.	Steel. Ga'v.	Iron. Black.	Iron. Ga'v.
Butt.				
⅛ inch and ¼ inch.	71.2	50.2	63.2	42.2
⅜ inch	75.2	64.2	66.2	55.2
¾ inch to 1½ inch.	78.2	69.2	71.2	62.2
Lap.				
2 inch	76.2	68.2	68.2	60.2
4½ inch to 6 inch..	77.2	68.2	69.2	61.2
Card Weight.				
7 inch to 12 inch...	74.2	63.2	67.2	56.2
Extra Strong Plain Ends. Butt.				
⅛, ¼, ⅜ inch	66.2	54.2	61.2	48.2
½ inch	71.2	59.2	65.2	53.2
¾ inch to 3 inch...	76.2	64.2	....	....
Lap.				
2 inch	72.2	60.2	66.2	54.2
7 inch to 8 inch....	66.2	54.2	60.2	48.2
Double Extra Strong. Butt.				
½ inch	59.2	47.2	....	....
¾ inch to 1½ inch.	62.2	50.2	....	....
Lap.				
2 inch	60.2	48.2	....	....
4½ inch to 6 inch..	61.2	49.2	....	....
7 inch to 8 inch....	54.2	42.2	....	....

Tubes.

	Lap weld steel. Per cent.	Charcoal iron. Per cent.	Shelby seamless. Per cent.
1 inch	39	..	57½
1¼ to 2¼ inch	55	40	35
2¾ to 3¼ inch	65	50	46
3½ to 4½ inch	67½	50	46
5 to 6 inch	55	..	..

Cast Iron Pipe.—Various municipalities are taking considerable interest in their spring requirements and early buying is expected. Awards are pending in the city of Minneapolis for 3,750 tons of water pipe. The Milwaukee Gas Co. has ordered 2,700 tons of gas pipe from the leading maker and the People's Gas Light & Coke Co., of Chicago, is reported to be in the market for a round tonnage as is also the St. Paul Gas Co.

We quote, per net ton, as follows:

Four-inch water pipe, $26.50; 6 to 12 inches, $24.50, larger sizes, $24; gas pipe, $1 a ton higher.

Old Material.—The scrap market is showing some signs of a relapse, although prices are, if anything, higher. Heavy buying, however, on the part of steel companies and others has ceased and the market is not being as well supported as it was ten days ago. Heavy melting steel is particularly high and we note an offer for a round tonnage equal to $11.40, Chicago. Some re-rolling rails have been sold at $13 per net ton, Chicago. The pressure on the dealers just at present is severe and some have sold small quantities of scrap at a loss in order to liquidate their holdings. The Chicago & Northwestern last week sold 2,000 tons of various grades of old material. The country dealers are well supplied, although little scrap is moving into this market from outside districts.

We quote, for delivery in consumers' yards, Chicago, as follows:

GROSS TONS.

Old car wheels	$13.00 to 13.50
Old iron rails	14.50 to 15.00
Rerolling rails (5 ft. and over)	12.75 to 13.25
Old steel rails (3 ft. and under)	11.75 to 12.25
Frogs, switches and guards	10.25 to 10.75
Heavy melting steel	11.00 to 11.50
Shoveling steel	10.00 to 10.50

NET TONS.

No. 1 R. R. wrought	$11.00 to 11.50
No. 2 R. R. wrought	10.00 to 10.50
Arch bars and transoms	13.50 to 14.00
Knuckles, couplers and springs	10.00 to 10.50
Shafting	13.00 to 13.50
Iron car axles	18.00 to 18.50
Steel car axles	15.50 to 16.00
Locomotive tires	14.00 to 15.00
Dealers' forge	8.75 to 9.25

Pipe and flues	8.00 to 8.50
No. 1 cast	11.00 to 11.50
No. 1 busheling	8.50 to 9.00
No. 2 busheling	6.25 to 6.75
No. 1 boiler cut	7.00 to 7.50
Boiler punchings	12.50 to 13.00
Cast and mixed borings	6.00 to 6.50
Machine shop turnings	6.50 to 7.00
Railroad malleable	10.50 to 11.00
Agricultural malleable	9.25 to 9.75
Angle bars, splices, etc., iron	12.50 to 13.00
Angle bars, steel	9.50 to 10.00
Stove plate and light cast scrap	9.25 to 9.75

Matthew Addy & Co. have been appointed exclusive sales agents for the pig iron output of the Alabama Consolidated Coal & Iron Co., Birmingham, Ala., in the territory north of the northern boundaries of North Carolina, Tennessee, Arkansas, Oklahoma, New Mexico, Arizona and California.

Cleveland

Some Interest in Ore Prices.—Pipe Company Inquiring for Pig Iron.

Office of THE IRON TRADE REVIEW, Penton Bldg., Jan. 9.

Iron Ore.—Some furnace operators have been quietly investigating to ascertain the sentiment of ore producers concerning prices for the following year and a few requests for reservations have been made. Consumers are however, careful not to show any very keen interest and sellers are not at all disposed to commit themselves as to what they think prices ought to be. During December, 773,503 tons of ore were shipped from Lake Erie docks to furnaces. This is a fair movement.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; Mesabi non-Bessemer, $3.50.

Pig Iron.—The Massillon Iron & Steel Co., Massillon, O., is inquiring for 10,000 tons for delivery beginning Feb. 1, at the rate of 2,500 tons per month. Of this tonnage 4,000 is No. 3 foundry, 3,000 No. 4 and 3,000 gray forge. Sales in the city of Cleveland have not been large, but there is a slight tendency toward hardening of prices. On an inquiry for a moderate tonnage of No. 2 foundry, one Cleveland foundry quoted $13.50, delivered, but did not get the business and it is understood that it went at $13.25, delivered. One Cleveland agency sold 10,000 tons last week and 10,000 tons this week, of various grades. This was not for delivery in the city of Cleveland. Orders have been much more freely placed from outside the city than for delivery within the city. We note the sale of several lots of ferro-manganese at $41, Baltimore.

No. 1 foundry	$13.75
No. 2 foundry	13.25
No. 2 southern	14.35
Gray forge	12.50
Bessemer	15.15
Lake Superior charcoal	16.50
Jackson Co. 8 per cent silvery	17.05

Coke.—The foundry coke market is showing considerable improvement and prices are firmer. We quote:

Connellsville furnace coke, $1.75 to $1.80 for prompt delivery, and $1.75 to $1.80 on contract; Connellsville foundry coke, $1.90 to $2 for prompt, and $2.00 to $2.35 on contract.

Finished Materials. — A Cleveland representative of a German rolling mill has been commissioned to make a three year contract with American steel-making firms for a total of 360,000 tons of steel in ingot form, one-third to be open-hearth and two-thirds to be Bessemer. Inquiry for a fair tonnage of forging billets for delivery in Cleveland is pending. Specifications against contracts are coming in freely, but the volume of new business is not heavy. For the most part, prices are well maintained, but it is still possible to buy plates at 1.15c, Pittsburgh. On steel bars, 1.15c, Pittsburgh, for delivery up to April 1, and 1.20c, for delivery during the second quarter are apparently the minimum quotations.

Old Material.—The sudden advent of extremely cold weather has resulted in curtailment of shipments both into and out of this city. Demand has been fair up to this time. Heavy steel users have not sought to add to their present holdings in quantity, while rolling mills are keeping in active touch with the market, while not closing for large amounts. One buyer has out an offer for a tonnage of busheling that dealers have not accepted as yet. We quote, gross tons, f. o. b. Cleveland, as follows:

Old steel rails (under 6 ft.)	$12.00 to 12.25
Old steel rails (over 6 ft.)	12.25 to 12.75
Relaying rails	20.00 to 21.00
Old car wheels	12.00 to 12.50
Old steel boiler plate	10.00 to 10.50
Malleable iron (railroad)	11.50 to 12.00
Steel axles	18.00 to 18.50
Axle turnings	8.50 to 9.50
Malleable iron (agricultural)	10.75 to 11.25
Heavy steel	11.00 to 11.50
Country mixed steel	9.50 to 10.00
Bundled sheet scrap	8.50 to 9.00

We quote, net tons, as follows:

No. 1 R. R. wrought	$11.00 to 11.50
No. 1 busheling	9.50 to 10.00
No. 1 machine cast	11.00 to 11.50
No. 1 dealers' wrought	10.00 to 10.50
Machine shop turnings	7.00 to 7.25
Pipes and flues	9.00 to 9.50
Wrought drillings	7.00 to 7.25
Stove plate	9.00 to 9.50
Cast borings	6.50 to 7.00
Wrought iron piling plate	15.50 to 16.00
Wrought iron arch bars	15.50 to 16.00

W. H. Wright, Rayville, La., is preparing plans for an electric lighting plant to be erected by the city.

Cincinnati

Pig Iron Prices Firmer and Some Sellers Advance Quotations.

Office of THE IRON TRADE REVIEW, 808 Provident Bank Bldg., Jan. 9.

Pig Iron.—Reports indicate that a fair volume of business has resulted during the week, in fact the aggregate tonnage is far in excess of the usual holiday transactions. Prices, while apparently on the same basis as in the last report, are considerably stiffer, and are holding well. Southern producers as a rule have advanced prices from 25 to 50 cents per ton, for the first and second quarter respectively, and while it is possible to buy certain brands of southern iron at the old figure of $10, it is equally certain that this figure would not apply to all standard Birmingham brands. Southern yards show the effect of the recent heavy drain that has been made upon them both from foreign and domestic sources, and the presumption is that the most of them have well filled order books and are in a satisfactory condition. Northern furnaces are firm on a $13 Ironton basis, with order books in practically the same condition as in the south. Local foundries are spasmodically busy, and are melting a fair tonnage of iron, yet trade is far below normal. A sale of 1,000 tons of southern foundry grades was made in Chicago territory, a central Ohio melter bought 200 tons of northern and 300 tons southern, 600 tons went to a northern Ohio melter divided between northern and southern, 400 tons of southern car wheel went into north-eastern Ohio at about $23, 1,500 tons of northern and southern foundry grades were taken by a northern Ohio plant. Several inquiries are being figured on, the most of them however, representing light tonnage. A local concern wants 500 tons foundry grades, which will probably be northern or Virginia brands. One of the large sanitary interests wants 2,000 tons of southern brands for western delivery. A southern Ohio melter wants 500 tons of northern and 300 tons of southern. Freight rates from Birmingham $3.25, and from Ironton $1.20. We quote at Cincinnati as follows:

Southern foundry No. 2	$13.25 to 13.75
Southern foundry No. 3	13.00 to 13.50
Southern foundry No. 4	12.75 to 13.00
Southern gray forge	12.50 to 12.75
Mottled	12.50 to 12.75
Southern No. 1 soft	13.75 to 14.25
Southern No. 2 soft	13.25 to 13.75
Standard southern car wheel	25.25 to 25.50

Northern No. 2 foundry.....	14.20
Northern No. 3 foundry.....	13.70
Northern No. 4 foundry.....	13.20
Jackson co. 8 per cent silicon..	16.45 to 16.95

Coke.—The market is holding firm, and prices are said to be unchanged. There is little being done in the way of new contract business at this time, as practically all of the furnace interests are covered until the middle of the year. Shipments are moving in a very satisfactory manner, and will probably continue to do so, if the cold wave that now exists all over the country does not prohibit further operations. We quote prices from the leading coke producing districts as follows:

	Prompt shipment.	Contract second half.
Connellsville district:		
Foundry coke	$2.00 to 2.25	$2.00 to 2.40
Furnace coke	1.70 to 1.75	1.75 to 1.90
Wise county district:		
Foundry coke	2.00 to 2.25	2.00 to 2.25
Furnace coke	1.75 to 2.00	*Sliding scale basis.
Pocahontas district:		
Foundry coke	2.00 to 2.10	2.00 to 2.10
Furnace coke	1.65 to 1.75	1.70 to 1.90
New river:		
Foundry coke	2.50 to 3.15	2.60 to 3.25
Furnace coke	2.10 to 2.15	2.10 to 2.20

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16⅔ per cent of the amount over $9 at which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

Finished Material.—New specifications during the week have proven very attractive, and a fair amount of business was booked. Conditions regarded locally are quiet, although there are one or two buildings contemplated, that will require considerable structural material. Steel bars are quotable at 1.15c and shapes and plates 1.20c Pittsburgh.

Old Material.—The market is quiet and without special feature. Sales are reported light, and contract shipments fairly well maintained. Dealers' yards appear to be well stocked, indicating limited offerings. Mills are taking contract business, but not making new deals to any extent. Prices are said to be holding fairly well, yet are no doubt subject to considerable fluctuation. According to dealers they are as follows:

GROSS TONS.

Old iron rails	$12.00 to 13.00
Old steel rerolling	11.00 to 11.50
Old iron axles	18.00 to 18.50
Steel melting scrap.....	9.50 to 10.50
Car wheels	10.50 to 11.00

NET TONS.

Old No. 1 R. R. wrought.....	$10.50 to 11.50
No. 1 machinery	10.00 to 10.50
No. 1 busheling	8.00 to 9.00
Stove plate	6.50 to 7.00
Machine shop turnings.....	5.50 to 6.00
Cast borings	4.50 to 5.00
Grate bars	6.00 to 7.00
Sheet iron bundled	6.50 to 7.50
No. 1 cast scrap.....	10.00 to 10.50
Heavy turnings	6.00 to 7.00

Hickman, Williams & Co. have been appointed exclusive sales agents by the Jackson Iron & Steel Co., Jackson, O., maker of high silicon Jackson county softeners and Bessemer ferro-silicon, in the Pittsburgh, Cincinnati, Detroit, Louisville, Chicago and St. Louis territories.

Philadelphia

Market Quiet in All Branches—Iron Stocks Lower.

Jan. 8.

Quietness marks the opening business week of the new year in both the raw and finished materials in the Philadelphia and eastern market. Eastern mills show no heavier booking movement and operations are not increased. Prices are substantially unchanged. Merchant iron stocks in eastern Pennsylvania are considerably less at this time than a year ago. Scrap buying is still slow.

Pig Iron.—After the heavy buying of December in this territory, the market is naturally quiet, though one or two sellers report fair sales. At the monthly meeting of the Eastern Pig Iron Association the past week, an increase in orders of about 10 per cent over the tonnage at the beginning of 1911 was shown. This was due to the heavy selling done in November and December for first quarter shipment. Merchant iron stocks of the association at the end of the year were less than 100,000 tons, a reduction of 15 to 20 per cent in the year. Foundry iron selling is usually in small lots at present at prices well included within the range of $15 to $15.25, delivered, for No. 2X, but more aggressive sellers are still going as low as $14.75, delivered, on attractive lots, which nets $14, or slightly more at the furnace. After some sales as low as $12 for No. 2 by at least one maker, Virginia iron is firmer at $12.25 to $12.50, furnace, although iron has been offered at $12.25 for the third quarter. A cast iron pipe maker this week closed for about 3,000 tons of northern low grades at $14.25, delivered, for shipment within the first quarter. A Schuylkill valley rolling mill interest which recently took a lot of southern off basic at $13.80, delivered, is inquiring for 3,000 tons of mill forge for first quarter. Standard northern forge is quotable around $14.25, delivered. An eastern steel maker which was inquiring for 4,000 tons of standard Bessemer and 2,000 tons of low phosphorus for delivery to May, is understood to have placed this business with eastern furnaces. A New Jersey consumer has been inquiring for 1,000 tons of basic for forward shipment. Some eastern makers have recently quoted basic at $14, furnace, but other eastern producers will do $13.75, furnace, or less, equivalent to about $14.25, delivered at principal consuming points. Low phosphorus of standard analysis is quoted at $19.25 to $19.50, Philadelphia. The Thomas Iron Co. has blown out two additional furnaces and now has but one Hakendauqua stack of all its nine furnaces in operation.

We quote for prompt and first quarter delivery as follows:

No. 1X foundry	$15.25 to 15.50
No. 2X foundry.....	14.75 to 15.25
No. 2 plain	14.50 to 14.75
Standard gray forge.....	14.25 to 14.50
Basic	14.25 to 14.50
No. 2X Virginia	15.05 to 15.30
No. 2 southern.....	14.00 to 15.00
Standard low phosphorus.....	19.50 to 20.00

Coke.—A Schuylkill valley consumer has bought about 5,000 tons monthly of Connellsville furnace coke at $1.70 or $1.75, ovens. Some eastern consumers have offered as high as $1.80 for prompt furnace coke, but the producers have been asking $1.85, ovens. There has been some further selling of Pocahontas district furnace coke to Virginia buyers around $1.65, ovens.

Finished Material.—The eastern market for finished products is comparatively quiet and there are no indications of marked improvement. Orders are numerous, but do not aggregate a heavy tonnage. Operations with eastern mills still show no tendency to expand. Prices are practically unchanged. Plates and shapes are selling at 1.15c to 1.20c, Pittsburgh, or 1.30c to 1.35c, Philadelphia. Steel bars are firmer than some other lines and 1.15c, Pittsburgh, is generally quoted. Bar iron is stronger and now rules at 1.25c to 1.30c, Philadelphia. A sale of 500 tons of open-hearth billets for first quarter at $20, Pittsburgh, is noted, and makers are generally asking this level as a minimum, though it is reported that the price can be shaded on larger lots.

The Pennsylvania lines east, which took bids last week on 6,000 to 13,000 cars, has not yet announced its awards, though it is understood it has placed 100 freight cars of the 52-foot length type with the American Car & Foundry Co. This system is also still negotiating with the mills on its rail specifications for 1912 de-

livery, although final action in this respect is not far distant.

Structural lettings are small. The Woodward & Lathrop building, Washington, 300 tons, has gone to Dietrich Bros. The Belmont Iron Works has the steel work for the Pennsylvania station at Newark, N. J., which is not large, and 500 tons for a New York apartment. The Harlan & Hollingsworth Corporation has the contract for a vessel for New Orleans interests, the steel requirements of which will not exceed 500 tons. Bids for the Bellevue-Stratford hotel addition, this city, about 1,500 tons, are due Jan. 15. Plans will soon be out for the Hotel Vendig, this city. The stock exchange, this city, is still held up. Eastern plate and shape makers are interested in the decision awaited from the McClintic-Marshal Construction Co. as to whether much of the 41,000-ton Hell Gate bridge requirement will go to the Pottstown, Pa., plant of this fabricator.

Reflecting the poor demand for motive power, the Baldwin Locomotive Works this week went on a four-day week schedule. The plant has been operating five days a week for several months.

We quote, delivered in Philadelphia and vicinity, as follows:

Structural shapes, 1.30c to 1.35c; steel plates, 1.30c to 1.35c; steel bars, 1.25c to 1.30c; common bar iron, 1.20c to 1.25c; cut nails, 1.65c to 1.70c; blue annealed sheets, No. 10 gage, 1.65c to 1.70c; 4 x 4-inch open-hearth rolling billets, $21.40 to $22.40; forging billets, $26.40 to $27.40. Extras shown under Pittsburgh report.

Old Material.—The open demand for scrap by consumers in the eastern market is still slow, but the better conditions in the Pittsburgh district continue to exert a hopeful influence upon sellers. The eastern steel mills will not offer more than $12.25, delivered, for heavy steel, but these interests are apparently getting some tonnage direct from the railroad lists, dividing this material with the dealers. The steel on the Pennsylvania railroad list just closed is reported to have gone above $12.50, delivered. The Reading is closing this week. An active demand for turnings around $10, delivered, is reported from the Pittsburgh district and some shipments are being made to that district from the east, where the market is low. We quote, gross tons, delivered in eastern Pennsylvania and New Jersey consuming territory, as follows:

Old iron rails	$16.00 to 17.00
Old steel rails (rerolling)	14.25 to 14.75
No. 1 heavy melting steel	12.25 to 12.75
Old car wheels	12.25 to 12.75
Old iron axles	23.00 to 24.00
Old steel axles	17.50 to 18.50
No. 1 railroad wrought	15.50 to 16.00
Wrought pipe	11.75 to 12.25
Cast borings	8.25 to 8.75
Machine shop turnings	9.50 to 10.00
Heavy cast	12.50 to 13.00
Malleable	11.75 to 12.25
Stove plate	10.50 to 11.00

Freight rates per ton on scrap from Philadelphia to principal eastern consuming points are: $0.60 to Ivy Rock, Pa.; $0.65 to Phoenixville, Pa.; $0.80 to Coatesville, Pa.; $0.85 to Bethlehem, Pa., Reading, Pa., and Roebling, N. J.; $1.10 to Pottsville, Pa., Lebanon, Pa., and Columbia, Pa.; $1.20 to Harrisburg and Steelton, Pa.; $1.40 to Milton, Pa.

Birmingham

Small Lot Sold at Advance.—Only Fair Amount of New Business.

Birmingham, Ala., Jan. 8.

Pig Iron.—The tonnage entered by local producing interests so far in the new year, though covering a very wide range of territory, is fairly attractive in the aggregate and quotations as last revised are believed to have been fully maintained by the several concerns which now ask an advance over the $10 Birmingham basis. A reduction in the rate of production has just been made by the blowing out of one furnace for re-lining, and still an additional stack is to be blown out in the next 30 to 60 days. So far as is known, there are no plans to blow in furnaces to take the place of those just referred to, but in anticipation of a larger demand, repairs are now under way at plants that have been idle for some months. The actual movement from furnace yards has not increased since Jan. 1 to the extent expected, although operations at several foundry plants in the immediate territory were not resumed until today, after having been closed down during the holidays. Of the sales reported during the past week, an aggregate of 3,500 tons for first half shipment brought a basis of $10.50 per ton at Birmingham for No. 2 foundry. This tonnage was engaged in comparatively small lots, and represents a class of trade that would ordinarily pay a premium for favorite brands. The bulk of the tonnage sold in the week brought a strict $10 basis, but no large lots were recorded at such figures. The inquiry pending at this time is probably for less tonnage than was represented by the inquiry pending at the beginning of the year, and it is noted that several round lots submitted some weeks ago are still unplaced. Local producers, together with leading interests in Tennessee and Virginia, are making an effort to secure lower freight rates to Ohio and Mississippi river crossing points, and developments in that regard are being awaited with interest. It is pointed out that the present rate from Birmingham to Cincinnati is the same as the rate in effect when Birmingham iron was sold at $21 to $22.50 per ton at Birmingham, and that with the present selling prices, it is almost impracticable to compete in northern territory with the eastern furnaces. There has been some demand for charcoal iron since last report, although no sales of basic have been made. We quote all grades as below, for shipment during the first half without an established price for deliveries further advanced, viz.:

No. 1 foundry, and No. 1 soft	$10.50
No. 2 foundry	10.00
No. 3 foundry	9.50
No. 4 foundry	9.25
Gray forge	9.25
Standard basic	$10.00 to 10.50
Standard charcoal iron	22.00 to 23.00

These prices are per gross ton f. o. b. cars at Birmingham district furnaces.

Cast Iron Pipe.—Very little tonnage has been added to order books recently, but bids have been submitted on some 3,500 tons to be placed during the coming week. Operations have been resumed at all local plants that were closed during the latter part of December with sufficient tonnage in hand to warrant steady operation for some months. So far as is known, prices are being fully maintained, and the volume of business in sight is no smaller than is generally expected at this season of the year. Unfavorable weather conditions in the northwest have to some extent affected the movement against contracts now being delivered, but producers' stocks are not large. We continue to quote water pipe as follows, per net ton f. o. b. cars here, with $1 per net ton extra for gas pipe, viz.:—4-inch to 6-inch, $22.50 to $23; 8-inch to 12-inch, $21.50 to $22, over 12 inches, average $20.50 These prices are probably shaded for large municipal contracts, but are firm for the business being placed.

Old Material.—There is considerably more demand for wrought and steel grades, and several lots of 50 to 100 tons each of machinery cast were sold during the week. The accumulation of all grades is probably less at this time than for some years past, which is especially true of old rails and axles. There is some tonnage of steel grades to change hands soon, but in view of the demand, it is quite improbable that stocks will be increased materially. We continue

to quote dealers' asking prices as follows, per gross ton f. o. b. cars here, viz.:

Old iron axles (light)	$12.50
Old steel axles (light)	12.00
Old iron rails	11.50
No. 1 R. R. wrought	10.00
No. 2 R. R. wrought	9.50
No. 1 country	6.50
No. 2 country	6.00
No. 1 machinery	9.00
No. 1 steel	8.50
Tram car wheels	8.50
Standard car wheels	10.00
Light cast and stove plate	6.50

St. Louis

Little Inquiry Pending and Outlook Not Encouraging.

Jan. 8.

Pig Iron.—Some little inquiry for spot shipment about epitomizes the pig iron situation in the St. Louis territory, with the new year thus far advanced. Local dealers are unable to see anything encouraging in the outlook. Southern No. 2 iron is quoted all the way from $10 to $10.50, Birmingham, with scarcely a decent inquiry in sight, and no sales of consequence were made last week. Northern iron is in little or no demand, with prices remaining at $13 to $13.50, Ironton. Our quotations for southern iron, delivered, to which the Birmingham freight of $3.75 has been added, follow:

Southern No. 1	$14.50 to 14.75
Southern No. 2	14.00 to 14.25
Southern No. 3	13.50 to 13.75
Southern No. 4	13.00 to 13.50

Coke.—Quotations on coke remain as follows, with a little tendency to stiffen, and no new business in sight.

We quote 72-hour Connellsville foundry grades, $2.00 to $2.40 for first half of 1912; 72-hour foundry, $2.00 to $2.25 on tracks and for immediate delivery; 48-hour Connellsville furnace, $1.75 to $1.80; best 72-hour Virginia foundry, $2.15 to $2.25; 48-hour Virginia furnace, $1.75 to $1.85. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Old Material.—Our tabulated prices on scrap iron remain as follows, with very little prospect for immediate improvement in business:

GROSS TONS.

Old car wheels	$13.00 to 13.50
Old iron rails	14.00 to 14.50
Re-rolling rails (5 feet and over)	12.00 to 12.50
Old steel rails (3 feet and under)	10.75 to 11.25
Light section relayers (45 lb. and under) subject to inspec..	20.00 to 21.00
Re-laying rails, subject to inspec.	23.50 to 24.00
Frogs, switches and guards	10.00 to 10.50
Heavy melting steel	10.50 to 11.00
Shoveling steel	10.00 to 10.50

NET TONS.

No. 1 railroad wrought	$10.50 to 11.00
No. 2 railroad wrought	9.50 to 10.00
Arch bars and transoms	13.00 to 13.50
Knuckles, couplers and springs.	9.00 to 9.50
Shafting	13.00 to 13.50
Iron car axles	17.00 to 17.50
Steel car axles	15.00 to 15.50
Locomotive tires	14.00 to 14.50
No. 1 country wrought	8.75 to 9.00
Pipe and flues	7.50 to 8.00
Tank iron and cut boilers	7.00 to 7.25
No. 1 cut busheling	8.50 to 8.75
No. 2 cut busheling	6.00 to 6.25
Cast and mixed borings	5.25 to 5.50
Machine shop turnings	6.25 to 6.50
Railroad malleable	9.50 to 10.00
Agricultural, malleable	8.50 to 9.00
Stove plates	8.75 to 9.25
Angle splice bars (iron)	10.50 to 11.00
Angle splice bars (steel)	9.25 to 9.50

British Market

Iron Trade Review Readers Seek to Import American Steel.

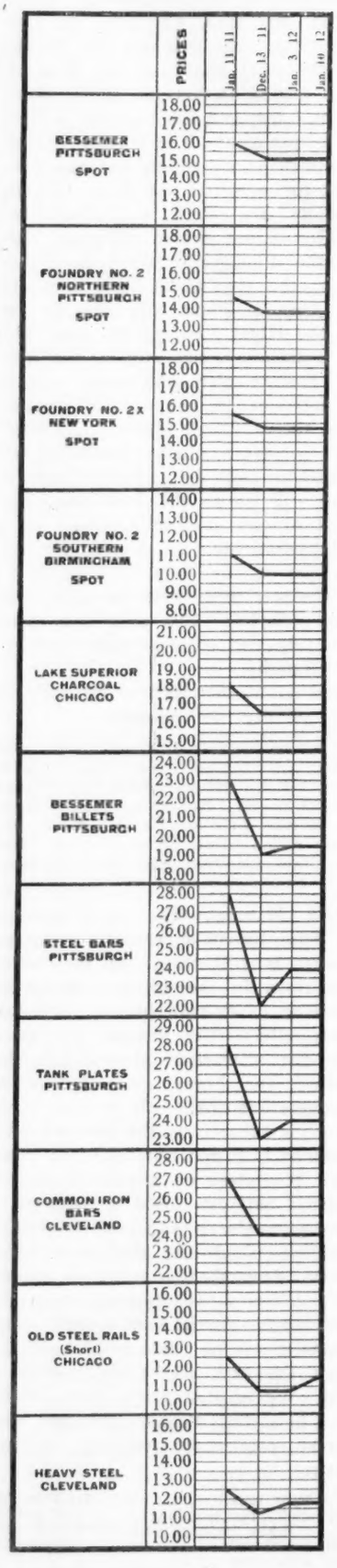
Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Dec. 30.

Pig Iron.—The last week of the year has proved the best, as far as pig iron is concerned. Cleveland has led the way in making records. The month has been the best on record for shipments, with excellent cargoes to Germany, Belgium and Italy; even far-away markets like Japan making a good showing. The stock is now 538,000 tons, representing a fall this month of 18,000 tons. Makers still keep the selling figure for No. 3 at 51s ($12.48) with 52s 6d ($12.84) for first quarter. The month has been very brisk for Cleveland iron, there being a rise of 1s in two days, and 3s on the minimum of the month. The Glasgow market is very firm, special benefit having been derived in that district from better American advices. More solid improvement is recorded in the hematite department. Prices have advanced from 60s 6d ($14.80) for northeast coast mixed numbers, to 66s ($16.16) for prompt delivery, and 67s 6d ($16.16) for the first quarter. In the Barrow district, the demand shows an equal improvement, mainly due to steel trade demands.

Finished Material.—This has been a holiday week, and many works have taken a full week's stoppage for the purpose of dealing with urgent repairs. Wherever possible, a restart was made on Wednesday or Thursday. The activity of the Birmingham market was very indicative of the anxiety of the consumer to get material. There is plenty of work on offer, although most of the Staffordshire mills have three months work on their books.

In the steel trade, everything points to higher prices. There is practically no Continental steel to be had, scarcely even on old contracts, and no bookings earlier than March or April.

PRICE CHART



Interest in this department centers on American material, to obtain which great efforts have been made by some merchants. One merchant wrote to every firm whose name he could find in THE IRON TRADE REVIEW, and he received a number of replies. It is remarkable that prices have not advanced in America to anything like the extent they have here, and the general result of inquiries, so far, is that with a reduction of 1s 6d per ton in freights, billets could be got here at a profit, and in almost any quantity. They would be heartily welcomed by many consumers, who consider the selling figures here excessive, and can scarcely get supplies even at these prices. Importers are very sanguine of success in their efforts to get American steel here. On the other hand, British makers have all along shown so much respect for foreign possibilities in the way of competition that they may adapt their prices to the figure necessary to retain the home market. At present, anyhow, they are making hay, and plenty of it, while the sun shines.

METAL MARKETS

St. Louis

Jan. 8.

Lead and Zinc.—A top price of $48 a ton was realized for zinc blende in the Missouri-Kansas-Oklahoma district last week for 60 per cent grades, $45 base, running down to $40. As a result of the cold weather, the output was curtailed to a large extent, nearly all of the smaller mines being compelled to suspend operations.

It is believed that the outlook for better prices is stronger that at the beginning of 1911, when the top price of blende at the opening week was $44 a ton, dropping several dollars in the following week.

Calamine brought a top price of $30, assay base of $26, ranging down to $20. Bad weather curtailed the calamine production more than 50 per cent.

The top price realized for lead was $58 a ton, ranging down to $56.

Chicago

New Metals.—The demand for copper is fair in spite of high prices, and quotations are well maintained. Buying has picked up since the holidays. Lead is stationary and the demand is moderate. Spelter shows an advance of $3.00 a ton during the past ten days, but current quotations are exhibiting weakness. Tin is well maintained at 44½c, Chicago.

We quote, dealers' selling prices, f. o. b. Chicago, as follows:

Lake copper, carload lots, 14½c; casting, 14c; smaller lots, ¼c to ¾c higher. Spelter, car lots, 6.35c; lead, desilverized, 4.40c to 4.45c in 50-ton lots; corroding, 25c per 100 pounds higher; sheet zinc, $8.00 list, f. o. b. La Salle, in car lots of 600-pound casks; pig tin, 44½c. Cookson's antimony, 8¾c; other grades, 7½c to 8¼c.

Old Metals. — Since the holidays, buying has improved slightly and the market is moderately active. There is a fair demand from brass foundries and also a good demand for old aluminum from automobile manufacturers.

We quote, f. o. b. Chicago, as follows:

Copper wire, crucible shapes, 13½c, copper bottoms, 11c; heavy cut crucible copper, 11½c; heavy red brass, 12c; heavy yellow brass, 8¾c; No. 1 red brass borings, 9½c; No. 1 yellow brass borings, 8¼c; brass clippings, 8½c; lead pipe, 5c; zinc scrap, 5.50c; scrap aluminum, 12c; tea lead, 3¾c; No. 1 pewter, 28c; block tin pipe, 37c; tin foil, 35c; linotype dross, 3¼c; electrotype dross, 3c; stereotype plates, 4½c; stereotype dross, 3¼c; prime slab zinc dross, $80 to $85 a ton.

Will Represent Youngstown Company

The Continental Supply Co., with a capital stock of $1,000,000, has been chartered under the laws of Ohio, and will open offices in St. Louis, as selling agents of oil country goods for the Youngstown Sheet & Tube Co., Youngstown, O., and will also handle a complete line of oil country tools and machines. Sumner Merrick, formerly identified with the Oil Well Supply Co., Pittsburgh, is president of the newly organized company. W. W. Wilkinson Jr., and two or three others formerly connected with the Oil Well Supply Co. will be identified with the new company. Until Jan. 1, 1912, the Oil Well Supply Co. represented the Youngstown Sheet & Tube Co. in handling oil country goods.

The Northwestern Steel & Iron Co., Eau Claire, Wis., has just been awarded a contract to furnish $50,000 worth of gasoline engines to the M. W. Savage companies, Minneapolis, during 1912. The engines will be distributed through the Savage agencies.

The Critchley Machine Screw Co., Worcester, Mass., advises that it expects to install a few more automatic screw machines.

AWARD CONDEMNED

British Competitor on Quebec Bridge Makes Sharp Comment.

Further condemnation of the action of the Canadian government with regard to the Quebec bridge award was expressed at the annual meeting of the Cleveland Bridge & Engineering Co., held recently, says our Birmingham, Eng., staff correspondent. The chairman, Chas. F. Dixon, said that some eighteen months ago the Canadian government invited tenders for the construction of a large railway and road bridge over the St. Lawrence, near Quebec, to replace the structure which collapsed during erection by an American firm. In conjunction with the Metropolitan Amalgamated Carriage & Wagon Co., they formed and registered in Canada a new syndicate, and submitted a tender. Of four tenders, theirs, the only one from Great Britain, was the lowest. Eventually the Canadian government accepted a tender of about $9,000,000, from a Canadian firm for a railway bridge only, which did not conform to the conditions of the specification, and for which there was no competition whatever. The action of Sir Wilfred Laurier's government was an outrage, he declared, as had the other competitors taken liberties with the specifications the $9,000,000 bridge would not have been the cheapest. The public interest would have been better protected if all the original plans had been rejected and new plans and tenders invited.

The Cleveland Bridge & Engineering Co. has obtained in competition with Belgian, French and German firms, important contracts for a new road bridge over an arm of the Nile at Cairo, also for two swing bridges on extensions of the Egyptian State railways. The company is in negotiation for similar contracts for South America.

The Wolverine Brass Works, Grand Rapids, Mich., advises that it will begin work about Feb. 1 on additions to its plant to cover about 50,000 square feet. Not much new equipment will be needed, as the company is crowded for space at present. A modern power plant, however, of about 250-horsepower capacity, will be required, but the details of this have not yet been decided on.

The Lancaster Foundry Co., Lancaster, Pa., advises that it has purchased, or is about to purchase, the complete equipment for a nickel plating plant.

LATEST CONTRACT

For Youngstown Sheet & Tube Co.'s Improvements is for Controllers.

The latest important contract in connection with the big improvements at the East Youngstown mills of the Youngstown Sheet & Tube Co., Youngstown, O., was awarded several days ago to the Electric Controller & Mfg. Co., of Cleveland. This contract includes all of the controllers for the cranes and mill tables in the new mill, totaling in number between 90 and 100.

Other late contracts awarded by the Youngstown company are as follows: To the Westinghouse Electric & Mfg. Co., Pittsburgh, for motors for the mill, mill cranes, charging machines, etc., ranging from 5 to 150 horsepower, including spare parts; to the Variety Iron & Steel Works, Cleveland, for gas piping for open-hearth producers and dirt boxes for open-hearth furnace department; to the William B. Pollak Co., Youngstown, O., for six furnace stacks, and seven 100-ton steel ladles; to the Raymond Concrete Pile Co., for concrete piling for building and furnace foundations.

Death of Richard T. Crane

Richard T. Crane, president of the Crane Co., Chicago, died suddenly at his home in Chicago, 2451 South Michigan avenue, at 6 p. m., Jan. 8. The illness that finally brought about his death made itself apparent last Friday, when Mr. Crane left his office at noon on account of a severe cold and went home. The complaint did not appear to be serious and Mr. Crane would not remain in his bed. At 4 p. m., Monday, however, his condition became alarming and death came before the members of his family, aside from his wife, could be summoned. His death came just a day before his intended departure with his family on a special train for Pasadena, Cal., where he was to have spent the winter.

His last days were spent in the fight that had become his chief business in life, that of opposing "higher education". His last public utterance on this subject, which was given to the press just previous to his death, was as follows:

"The farther I go into the education question the more firmly am I convinced that I was right when I took the ground some time ago that the Illinois University, as well as all others, ought to be burned down and that the money spent on them should be expended where it would do some good."

Mr. Crane was well known, not alone for his opposition to higher education. Hundreds of independent business men today can trace their success to his profit-sharing system, which began in all branches of the Crane Co. ten years ago. Every Christmas since the plan became effective, the company has distributed 10 per cent of the annual earnings of each workman as a Christmas gift. In this manner more than $3,000,000 of the profits of the concern have been shared with its employes. The sum distributed last Christmas was slightly in excess of $500,000.

R. T. Crane was born in Paterson, N. J., in 1832, and spent his early life chiefly in labor, at the same time educating himself. He early mastered the machinists' trade, which he worked at in Paterson, Buffalo and New York. In 1855 he went to Chicago and started a small brass foundry which was the beginning of the Crane Co. He was joined by his brother, Charles R. Crane, in 1858, and began the manufacture of steam heating apparatus. An iron foundry was added in 1860. At this time the firm was known as R. T. Crane & Bro. The activities of the firm were developed constantly. The manufacture of pipe fittings was added to the work of the brass and iron foundries and the steam heater plant, and in 1874 the firm organized the Crane Elevator Co. for the manufacture of freight and passenger elevators of every description. This branch of the business brought Mr. Crane a wide reputation. The Crane Co. was one of the first to establish a relief fund for the benefit of its employes. This was done in 1890.

Pennsy's Car Orders

Pittsburgh, Jan. 10. (By wire.)—The car orders of the Pennsylvania system were distributed as follows: For the lines east, 1,200 coke cars to the Cambria Steel Co., 1,000 coke cars to the Pressed Steel Car Co., 1,000 gondola cars to the American Car & Foundry Co., 800 coke cars to the Standard Steel Car Co. For the lines west, 1,000 cars each to the Cambria Steel Co., Standard Steel Car Co. and American Car & Foundry Co.

The board of public works, Grand Rapids, Mich., will receive bids until Jan. 25, for a 350 to 375-horsepower water tube boiler for the municipal lighting plant.

NORTHERN PACIFIC ORDERS

For Same Tonnage as Great Northern—Other Rail Business.

New York, Jan. 10. (By wire.)—The Northern Pacific has closed for 36,000 tons of rails of which 13,000 went to the Illinois Steel Co., 10,000 to the Colorado and the balance was divided among the Lackawanna, Bethlehem and Pennsylvania Fuel & Iron Co. steel companies. The Great Northern order, also 36,000 as recently reported, was divided in practically an identical manner, the Illinois Steel Co. getting 13,000, Colorado 10,000 and the balance understood to have gone to the other three mills named. Pennsylvania's part in these orders will be of Mayari special analysis rails. The Nashville, Chattanooga and St. Louis has given the Tennessee company a supplemental order of 5,000 tons. The Pennsylvania Steel Co. has taken 6,000 tons of standard sections including 5,000 for a Massachusetts traction company.

Fabricating Prices Not So Weak

New York, Jan. 10. (By wire.)—Fabricating prices in general are showing greater strength in that some of the larger companies are more independent in meeting the quotations which have characterized the market. The leading fabricating interest is quoting on a higher basis and a comparatively small percentage of the work placed during the past several weeks has gone to this company.

Will Vote on Increasing Stock

Pittsburgh, Jan. 10. (By wire.)—A special meeting of stockholders of the Westinghouse Air Brake Co. has been called for March 20, to vote for or against an increase of capital stock and to adopt proposed amendments for by-laws. The object of increasing the capital stock is to enable directors to act upon a motion to distribute a portion of the surplus of the company to stockholders in the form of a stock dividend. The board of directors has been increased from nine to 11 members, the new directors being Walter D. Uptegraff and Cyrus S. Gray. The capital stock of the company now is $14,000,000.

The Home Lighting Co., Uniontown, Ky., contemplates improvements to its electric light plant. Two 125-horsepower boilers will be installed.

FOR EXPORT TRADE

Corporation Will Assemble Products at Baltimore.

New York, Jan. 10. (By wire.)—It is announced that the United States Steel Corporation has bought the plant of the Baltimore Bridge Co., Baltimore, and will establish a large warehouse which will be made an assembling base for export shipments for all products. The present fabricating business will be continued, but the importance of the transaction lies in giving the leading interest increased facilities for serving its export market from a favorable shipping point. The purchase of the plant is due to the retirement from business of Minor C. Kieth, proprietor of the business. The transaction was practically closed several months ago, but the Corporation's plans have just been made public.

Tr pp Succeeds Mather

Pittsburgh, Jan. 10. (By wire.)—Guy E. Tripp of Boston has been elected to succeed the late Robert Mather as chairman of the board of directors of the Westinghouse Electric & Mfg. Co. Mr. Tripp was chairman of the Metropolitan Street Railway reorganization committee. He is a member of the firm of Stone & Webster and is considered an expert in street railway and local traction matters.

Coke is Higher

Pittsburgh, Jan. 10. (By wire.) — Consumers are experiencing difficulty in getting prompt furnace coke and in a few instances $1.90 to $2 ovens has been offered. The bulk of the prompt trading this week has been done at $1.85 ovens. These prices compare with $1.35 ovens, the low mark and $1.65 ovens the high point in 1911.

Sale of Bessemer

Pittsburgh, Jan. 10. (By wire.)—A local consumer has closed for 1,000 tons of Bessemer pig iron for prompt shipment at $14.25, valley. The 9,000 tons of basic pig iron purchased by a nearby steel company will not come from valley furnaces. The valley producers are now asking $12.50, valley, for basic. The Scotdale furnace of Corrigan, McKinney & Co. was blown in last week.

Iron Ore Export.—The Bureau of Associated Geological Engineers, of 131 State street, Boston, a firm that already has extensive practice in other lines of geological investigations, has recently arranged for the services of an iron ore expert—a former member of the United States geological survey, thoroughly familiar with the ores and the conditions throughout the United States—and is now prepared to undertake the exploration, examination, mapping or appraisement of iron ores anywhere.

News of Southern Works

The furnace of the Eagle Furnace Co., at Attalla, Ala., that has been in operation for some three months on charcoal iron, has been blown out for re-lining.

No. 2 furnace of the Alabama Consolidated Coal & Iron Co., at Ironaton, Ala., has been blown out for re-lining. No. 1 furnace at that plant has been idle for some months, and it is understood will not be blown in at any early date.

Announcement is made that formal charge of the Birmingham Coal & Iron Co. will not be taken by the Woodward Iron Co. until Feb. 1, instead of Jan. 1, as was previously announced. The delay is attributed to the failure to perfect inventories and the details of the transfer within the time allowed.

Asks Reparation

The Thomas Iron Co., Easton, Pa., has filed a complaint with the interstate commerce commission against the Pennsylvania and Lehigh Valley railroads, charging that they maintain a rate of 60 cents a ton for ore shipped from Philadelphia to Easton, while only 50 cents is charged for the haul to South Bethlehem, Pa., a longer distance than to Easton. The Thomas company has asked for a reparation of 10 cents a ton on all ore shipped to Easton during the last two years.

Lease New Quarters

The Bush Terminal Co., New York, has leased to B. Lissburger & Co., and the Eagle Smelting & Refining Co., dealers in metals, 20,000 square feet of floor space in building No. 19 at the foot of Thirty-ninth street, South Brooklyn, N. Y. Lissburger & Co., who are the proprietors of the Eagle Smelting & Refining Co., will receive all their shipments in the future at the Bush union depot and ship their consignments from the Bush piers.

EXTENSIVE IMPROVEMENTS

And Additions Being Made by Lake Superior Iron & Chemical Co.

Wakefield, Mich., Jan. 8.—Extensive improvements and enlargements to its plants have been made the past year by the Lake Superior Iron & Chemical Co., of which John Joyce, of Boston, is president. The company is the largest producer of charcoal iron in the country and probably the largest producer of wood alcohol, acetate of lime and similar chemicals. It is preparing materially to increase its output of these commodities and it promises to become a considerable factor in lumber manufacturing. Its plants are at Ashland, Wis., and Boyne City, Elk Rapids, Manistique, Newberry and Marquette, Mich. The furnace at the last named point has not, however, been put in commission, operations being suspended some two years ago after the stack had been acquired from its former owners and $100,000 had been expended in rebuilding it. The company controls the Yale mine at Bessemer, Gogebic range, and approximately 150,000 acres of hardwood timber land. It is developing an 1,800-acre farm on some of its cut-over lands in Luce county, a part of which is set aside for stock raising.

A vast amount of plant improvement and extension work has been completed by the company since it was reorganized in July, 1910, and much more similar work is in contemplation. Under the supervision of W. H. Dow, of Marquette, the company's mechanical engineer, there has been or will be installed at Manistique a new central power plant and a new chemical plant for the manufacture of methyl alcohol and calcium acetate. The blast furnace has been relined and other improvements, including a new blowing engine, installed.

At Newberry, there have been installed a central steam power plant, aggregating 1,500 horsepower; a chemical plant for the manufacture of methyl alcohol and calcium acetate, and an extensive set of machine, blacksmith, locomotive and car repairing shops. The blast furnace, besides being completely relined, is being remodeled and enlarged.

The headquarters of the company are at Detroit, where three of the principal officers are located. These men are W. H. Matthews, vice president and general manager; L. F. Knowles, secretary, and F. W. Hutchings, treasurer.

CONTRACTS PLACED

With Westinghouse Electric for Largest Type of Generator.

The Pennsylvania Water & Power Co., of McCalls Ferry, Pa., has just placed an order with the Westinghouse Electric & Mfg. Co., for one 12,000 kilo-volt-ampere, 11,000 volt, three-phase, 25-cycle, 116 revolution per minute vertical waterwheel generator. This is among one of the largest machines of this type that has ever been built, and will be used to supplement the existing power plant equipment at McCalls Ferry. This company is now sending electric energy to the city of Baltimore.

The Indiana & Michigan Electric Co., South Bend, Ind., has placed an order with the Westinghouse Electric & Mfg. Co., for a large switchboard to take care of four 60 cycle, 3 phase, 25,000 volt lines. The order also includes 12 3-pole type GA electrically operated oil circuit breakers, four type A electrolytic lighting arrestors, together with a number of other details including choke coils, disconnecting switches and similar apparatus.

Employers' Liability Act in California

Three new laws, framed to increase the powers of the State Industrial Accident Board, have been passed at a special session of the California legislature, just closed. The bills, known as Senate Bills Nos. 11, 12 and 22, were introduced by Senator L. H. Roseberry, and somewhat amend the Roseberry employers' liability act ratified at the regular session of the legislature in April, 1911. Provision for the action was created by an amendment to the state constitution, approved by a vote of the people at special election on Oct. 10, 1911. The new laws provide as follows:

Employers shall report in full all accidents to the Industrial Accident Board within 15 days of happening. The board is empowered to investigate all industries and collect full statistics relating to such. Such data are to be the property of and remain with the board; the commission is prohibited from making its findings public. Employers must assist the board in this work, meeting its demands for information; refusal to so act places the employer liable to a fine or imprisonment. The board is allowed the sum of $15,000, from its full appropriation of $50,000, expressly for the purpose of fulfilling the provisions of the bill. An amendatory section to the law exempts those engaged in farming, dairying and similar occupations.

Employers, whether individuals, partnerships or corporations may organize among themselves inter-insurance associations for the exchange of indemnity claims of injured employes, with a prescribed license fee for such exchange. Employers may associate with other employers in the contribution of funds for the assistance of injured employes.

Distribution of Steel Shares to Employes

Preferred and common stock of the United States Steel Corporation will be distributed to the officers and employes of the Corporation at $110 per share of the former and $55 per share of the latter, according to an official announcement. This stock to the number of 25,000 shares, may be obtained by officers and employes of the Steel Corporation by subscription, payments for same to be made monthly at the minimum rate of $2.50 per share of preferred stock and $1.50 per share of common stock. The number of shares which may be subscribed for by any individual is governed by the amount of his salary.

Towing Locomotives Awarded

Award has been made by the canal commission to the General Electric Co. of the contract for one electric locomotive for towing ships through the locks, and a provisional award of 39 other locomotives, if the first one proves satisfactory. Five bids for the 40 machines were received, the highest being $827,395.95, and the lowest $498,016.35, that of the General Electric Co. The award was made on the regular bid, in which carbon steel was specified, the optional bid being for vanadium steel. The first locomotive is to be delivered on the Isthmus within 260 days from the award of the contract.

The Portland Light & Power Co., Portland, Me., contemplates the construction of a sub-station in that city. It is estimated that the project will cost approximately $100,000 to carry out.

The Nebraska Transportation Co., Omaha, Neb., contemplates the erection of a power plant at Elk City, Neb., to have a capacity of about 21,000 horsepower.

BUSY AT STEELTON

With Spirit of Optimism Prevailing as New Year Opens.

Steelton, Pa., Jan. 8.—The new year for the Pennsylvania Steel Co. here opened with large orders on the books and all indications point to a busy season ahead. The foundries are pressed with orders, the frog shop is pushing out delayed orders, the bridge department is preparing to make heavy shipments this week and the slab mill has been on double turn rolling heavy slabs for shipment and blooms for the merchant mill.

Among the busiest are the open-hearths, which made heavy outputs during the past week, all the new furnaces in the new plant and five in the old plant being in operation. The machine department also has considerable new work on hand. Blast furnaces Nos. 2 and 4 are in good producing condition, No. 4 earning a bonus in December.

About the plant there is a spirit of optimism due to the outlook for a prosperous year ahead regardless of the usual unrest on the eve of a presidential campaign. The shipments from all departments are heavy and promptly made. During the week just closed, considerable Lebanon iron was received and fuel is plentiful. Scrap receipts are heavy, but the ore comes in small quantities. The rail shipments were very active, the Reading railroad pushing forward the large stack of rails rolled during the previous week.

St. Louis Shipments

Receipts and shipments of pig lead and spelter at St. Louis for the last two weeks were as follows:

	Slabs of zinc.	Pigs of lead.
Receipts:		
For week ending Dec. 30..	134 950	36,160
For week ending Jan. 6...	74,890	43,680
Shipments:		
For week ending Dec. 30..	120,150	27,180
For week ending Jan. 6...	95,300	27,820

The Fairweight Standard Scale Co., Danville, Ill., advises that it will erect a new plant, of fireproof construction at Gary, Ind., late next spring. Buildings will be constructed and equipment installed on the unit system. Plans have not yet been completed. The company will locate its main office in Chicago after building operations are begun.

The Crossett Timber Co., Portland, Ore., plans for the erection of a sawmill and planing mill at Knappa, Ore. A site for the plant has been purchased.

NOVEMBER EXPORTS

About the Same as for October—Imports Show Large Decrease.

Exports of the tonnage lines of iron and steel in November amounted to 187,541 gross tons, or practically the same as those of October, which showed 186,234 tons. The forecast made a month ago, of about 2,175,000 gross tons for the calendar year need not be modified, as, taking December exports the same as November, the year's total would come out 2,184,401 tons. This will be a gain of 42 per cent over 1910, the previous record year, and of 66½ per cent over 1906, which previously held the record.

The value of all iron and steel exports, the tonnage lines just referred to constituting, as a rule, about 30 per cent of this value, amounted in November to $21,547,399, the largest value for a month in all history, barring March and April, 1911. The value for the 11 months ending November was $227,469,893, pointing to $249,000,000 as the value for the full calendar year, a gain of 24 per cent over 1910, which held the record, and of 26 per cent over 1907, which previously held the record.

IRON AND STEEL EXPORTS—GROSS TONS.

	November.		Eleven months ending November,	
	1910.	1911.	1910.	1911.
Scrap	2,555	4,406	21,109	73,929
Pig iron	20,875	8,147	115,966	109,858
Billets, sheet bars, etc.	17,695	13,871	47,350	216,832
Wire rods	1,857	2,510	21,297	18,716
Rails	28,263	25,140	311,587	398,000
Steel bars	9,682	8,675	99,324	111,954
Iron bars	949	1,581	16,929	16,668
Structural	8,909	28,174	133,403	205,765
Hoop, band and scroll	*	589	*	*2,932
Sh'ts and pl't's	25,851	38,760	251,475	328,511
Tin plate	2,455	5,056	11,402	54,730
Barb wire	10,134	13,879	72,904	88,741
All other wire	10,337	11,817	85,125	118,475
Cut nails	1,156	1,492	7,633	10,476
Wire nails	2,692	4,446	38,610	44,566
All other, including tacks	1,103	1,168	9,437	12,132
Pipes and fittings	10,212	17,422	142,480	180,897
Cast radiators, etc.	413	408	1,804†	3,678
Totals	155,138	187,541	1,387,835	1,996,860

*Not separately stated prior to July 1, 1911.
†Not separately stated prior to July 1, 1910.

The much greater gain in tonnage than in total value in 1912 over previous years is due to two causes; first, that the average value of the tonnage lines did not increase, but rather decreased from 1906-7 to 1911; second, that the tonnage exports increased in quantity much more than the non-tonnage lines increased in quantity. In 1906-7 the tonnage lines averaged 42 per cent of the total value; in 1911 they averaged a trifle less than 30 per cent. Their value increased absolutely, on account of the great increase in tonnage, but the value per unit decreased.

Decreased Imports.

November imports showed a large decrease from October, bringing them down to the September level. The decreases were distributed, being from 2,105 to 146 tons in scrap, from 10,444 to 8,346 tons in pig iron and from 3,358 to 1,503 tons in blooms, billets and steel, not elsewhere specified.

IRON AND STEEL IMPORTS—GROSS TONS.

	November,		Eleven months ending Nov.,	
	1910.	1911.	1910.	1911.
Scrap	1,293	146	70,143	16,622
Pig iron	20,427	8,346	217,322	134,664
Blooms, billets and steel n. e. s.	5,677	1,503	44,784	28,106
Wire rods	1,983	1,240	18,924	14,337
Rails	*	122	*	*1,271
Bar iron	2,847	1,943	35,726	25,122
Structural	*	196	*	1,352
Sh'ts and plates	299	138	5,967	2,074
Tin plates	8,059	246	63,530	13,689
Totals	40,585	13,878	456,396	237,237

*Not separately stated prior to July 1, 1911.

Iron and steel imports by months are shown in the table below. The monthly figures from July to October, 1911, are revised from those shown in preceding reports, in order to include rails, which are shown in the government figures since July 1, 1911. The rail imports for the five months through November amounted to 1,271 tons.

Iron and Steel Imports.

	1910.	1911.
January	56,207	32,795
February	43,613	20,455
March	54,176	23,533
April	47,693	22,392
May	42,569	23,376
June	30,322	29,395
July	41,933	15,782
August	36,879	19,943
September	30,961	14,039
October	31,455	21,035
November	40,585	13,878
December	31,576	.....
Totals	487,972	237,237

Iron Ore Imports.

Iron ore imports by months have been as follows:

	1909.	1910.	1911.
January	105,233	284,823	102,600
February	61,749	170,427	94,820
March	108,676	163,633	134,785
April	74,782	206,135	133,900
May	97,393	240,833	217,467
June	124,714	193,415	118,296
July	172,316	248,810	200,845
August	209,855	282,949	175,183
September	164,613	208,892	184,456
October	178,051	219,571	172,459
November	174,966	197,833	128,019
December	222,609	173,710	.....
Totals	1,694,957	2,591,031	1,662,830

December imports can be approximated only roughly. In 1909, December showed an increase of 47,643 tons over November, while in 1910 there was a decrease of 24,123 tons. Assuming that in 1911 there was no change from November to December, the year's iron ore imports would be 1,790,000 tons, showing a large decrease from 1910, but exceeding the imports in any preceding year. As far back as 1890, we imported 1,246,830 tons of iron ore, and it was not until 1909 that this record was broken. The imports in 1909 and 1910 are shown in a preceding table.

Sources of iron ore imports last year are shown in the following table:

	November.	Eleven months.
Spain	5,279	188,661
Sweden	18,871	202,362
Canada	10,200	50,424
Newfoundland	12,300	154,853
Cuba	81,315	1,042,414
Other countries	54	24,116
Totals	128,019	1,662,830

Foreign Rail Trade

Apart from a couple of Irish inquiries—one for 1,000 tons of 85's for the South-Eastern & Midland railway and one for 5,000 tons of 90's for the Great Southern & Western—the new rail business in prospect is trifling. The Workington Steel Co. have taken the South Indian order for 1,500 tons of three sections, and Guest, Keen & Co. the 6,000-ton order for the Bombay & Baroda railway, while the 1,000 to 2,000-ton order for the Carlskrona & Wexico line is to go to Germany, the 25,000-ton order for Bahia has gone to Belgium, and a 40,000-ton order for Brazil has been booked by the United States Steel Corporation.—*The Ironmonger.*

VALUE OF IRON AND STEEL EXPORTS—TONNAGE AND NON-TONNAGE.

	1907.	1908.	1909.	1910.	1911.
January	$ 14,327,926	$ 13,468,058	$ 10,329,388	$ 14,513,394	$ 18,739,961
February	13,946,842	14,063,559	10,947,159	13,949,082	18,690,792
March	16,419,116	15,168,155	13,874,461	17,258,503	22,591,848
April	17,684,863	15,455,319	13,058,054	16,529,254	24,917,056
May	14,594,043	11,281,415	12,993,197	17,658,042	20,616,795
June	17,226,259	11,677,944	13,779,736	16,503,204	20,310,053
July	17,614,017	12,085,951	11,866,772	16,108,102	18,052,337
August	17,587,181	12,958,561	14,136,219	17,628,538	20,704,154
September	16,830,160	11,221,799	12,966,908	16,776,178	20,534,139
October	18,786,750	11,505,063	14,249,598	17,452,085	20,799,591
November	17,051,755	10,895,549	14,434,690	18,593,806	21,547,399
December	14,997,869	12,231,741	15,075,183	18,300,710	.....
Totals	$197,060,781	$151,113,114	$147,680,331	$201,271,903	$227,469,893

EXPORTS OF TONNAGE LINES—GROSS TONS.

	1907.	1908.	1909.	1910.	1911.
January	102,630	74,353	70,089	118,652	152,360
February	87,912	81,773	84,860	110,224	150,919
March	112,787	96,681	94,522	124,980	215,888
April	132,790	93,285	100,904	117,921	228,114
May	91,543	64,041	109,977	135,306	178,428
June	92,996	69,770	114,724	120,601	174,248
July	122,240	86,796	100,680	123,216	162,929
August	118,792	86,244	105,694	131,391	177,930
September	114,819	76,732	97,392	119,155	181,086
October	123,170	85,766	110,821	129,828	186,234
November	116,309	71,130	115,943	155,138	187,541
December	86,019	77,659	137,688	150,116	.....
Totals	1,301,979	964,242	1,243,467	1,537,952	1,996,860

LARGEST INCREASE

In Monthly Tonnage Ever Shown by Steel Corporation.

New York, Jan. 10. (By wire.) — The United States Steel Corporation reported today unfilled orders as of Dec. 31, 5,084,761, an increase of 942,806 tons over the previous month. This is the largest monthly increase in tonnage ever shown by the Corporation.

Personals

Lewis D. Fraunfelter, of Easton, Pa., has been appointed superintendent of the Empire Steel & Iron Co.'s furnaces at Topton.

Dr. Paul Heroult, author of the Heroult process for electric steelmaking, has returned from a European trip.

R. A. Palmer, general manager of the Carter Car Co., Pontiac, Mich., and one of the founders of the company, has resigned.

William R. Kales, vice president of the Whitehead & Kales Iron Works, has been elected president of the Detroit Builders' and Traders' Exchange.

Stanley G. Flagg & Co., Philadelphia, announce that S. Griswold Flagg 3rd has been admitted to membership in the firm.

J. H. Jones, general master mechanic of the Ensley, Ala., works of the Tennessee Coal, Iron & Railroad Co., has resigned, effective Jan. 1.

E. A. Langenbach, president and general manager of the Berger Mfg. Co., Canton, O., was recently entertained in Germany by an excursion in a Zeppelin dirigible airship.

C. H. Halcomb, vice president and general manager of the Swedish Iron & Steel Corporation, 12 Platt street, New York, has sailed for a business trip to Sweden.

W. F. Sharp has resigned as general superintendent of shops for the Armour Car Lines, Chicago, to become vice president and general manager of the Grip Nut Co., Chicago.

W. J. Bixby has resigned as a director of the American Car & Foundry Co., New York. Mr. Bixby was recently appointed a receiver of the Wabash railroad.

Adolph Butze has retired from the position of general purchasing agent for the Grand Trunk railway, which he has filled for 16 years. John H. Guess, assistant purchasing agent, has been promoted to the vacant position.

R. J. Turnbull, assistant superintendent of machinery of the Missouri-Pacific-Iron Mountain system, has been appointed acting superintendent of machinery for the system, to succeed J. W. Small, resigned.

Robert C. Lea has resigned his connection with J. Tatnall Lea & Co., Stephan Girard building, Philadelphia, and Cyrus D. Tatman and Charles C. Renshaw became members of the firm on Jan. 1.

William Harty has resigned as president of the Canadian Locomotive Co., Ltd., and has been succeeded by Vice President Amelius Jarvis. General Manager A. W. Wheatley has also been elected vice president.

F. W. Hutchings, who was recently elected treasurer of the Lake Superior Iron & Chemical Co., will resign his office as secretary of the National Founders' Association as soon as arrangements can be made.

Hollinshead N. Taylor, a great-grandson of one of the founders of the business, was admitted on Jan. 1, as a partner in the firm of N. & G. Taylor Co., tin plate manufacturers of Philadelphia, established in 1810.

Harry G. Stoddard, formerly president of the Trenton Iron Co., Trenton, N. J., has become associated with the Wyman & Gordon Co., Worcester, Mass., in the capacity of vice president and general sales manager.

William A. Mazurie, superintendent of the Braddock Machine & Mfg. Co., has severed his connection with that company and accepted a position as sales manager with the National Steel Casting Co., of Montpelier, Ind., with his headquarters in Fort Wayne, Ind.

C. B. Flint, manager of the supply department of Manning, Maxwell & Moore, Inc., New York, has resigned to become president of Flint & Chester, Inc., 237 Lafayette street, New York. The latter concern will deal in railway, machinists' and contractors' supplies.

Frank B. Foster, for several years purchasing agent of the Midland Steel Co. and the S. Jarvis Adams Co., with their allied interests, has assumed his new duties as manager of sales of the S. Jarvis Adams Co., with offices in the German National bank building, Pittsburgh.

Mahlon E. First has been appointed mechanical engineer of the Indiana Harbor, Ind., plant of the American Steel Foundries. Mr. First was formerly connected with the Morgan Engineering Co., Alliance, O., and later with Pawling & Harnischfeger, Milwaukee.

William S. Dickson, general foreman of the Cincinnati Planer Co., Cincinnati, has been chosen secretary of the Cincinnati Metal Trades Association and the Cincinnati Association of Foundries, to succeed John M. Manley, who will become civic secretary of the Business Men's Club.

Crocker-Wheeler Co., Ampere, N. J., announce the addition to their organization of George W. Fowler, W. J. Warder Jr., and A. K. Selden Jr. Mr. Warder and Mr. Fowler have joined the sales department, while Mr. Selden enters the engineering department. Mr. Fowler has been for many years the sales manager of the Garwood Electric Co., Garwood, N. J. Mr. Warder was formerly chief engineer and superintendent of Roth Bros., in Chicago, and later was connected with the Westinghouse Electric & Mfg. Co., at East Pittsburgh. Mr. Selden has been for some years in charge of the design of the interpole adjustable speed motors manufactured by the Electro Dynamic Co.

Obituaries

James McBrier, 78 years old, president of the Ball Engine Co., Erie, Pa., died Jan. 9 at his home at Erie, of which city he was a resident for 30 years.

William J. Burkhard, secretary and treasurer of the Thomas Burkhard Copper Mining Co., which was founded by his grandfather in 1836, died of typhoid fever, Dec. 28, at his home in Brooklyn, N. Y., aged 42.

J. W. Mann, of Brockville, Ont., died on Dec. 28, aged 69. He founded the J. W. Mann Mfg. Co., which for some years was engaged in the manufacture of harvesting machinery until absorbed by the Deering Co., of Hamilton, Ont.

Charles I. Young, for many years considered the dean in sales educational work, and the instructor of the commercial training department of the sales organization of the Westinghouse Electric & Mfg. Co., died Jan. 6, at his home in Pittsburgh. A number of years ago, Mr. Young was identified with the Edison Machine Co., testing generators for that company. Later he was made superintendent of the Edison Electric Illuminating Co., and became identified with the Westinghouse interests in 1886.

Metal Output in Canada.—A report by the Canadian department of mines gives the output of certain metals in that country during 1910 as follows: Copper, 55,692,369 pounds; lead, 32,987,508 pounds; nickel, 37,271,033 pounds, and zinc ore, 5,063 tons.

A Plant for the Manufacture of Pipe Fittings

General Arrangement and Equipment of the Best Mfg. Co.'s New Works Which Include a Machine Shop and Foundry

A new plant for the manufacture of valves, pipe fittings, pipe bends and special castings, has been built by the Best Mfg. Co., at Oakmont, Pa., which is approximately 12 miles from Pittsburgh. The site is bounded on one side by the tracks of the Pennsylvania railroad and on the other by the Allegheny river. A spur track from the Pennsylvania railroad extends into the plant and a station called Edgewater has been established by the railroad company to designate this new industrial community. A ground plan of the plant, showing the general arrangement of the various departments, is illustrated in Fig. 14. On a tract of land opposite the works on A street a number of houses have been built for the employes and a club house and athletic field also have been provided.

All raw materials are received and shipments are made over the sidetrack connecting with the Pennsylvania railroad and branches from this spur extend into the pipe yard, machine shop, foundry and the foundry stock yard. Raw materials for the foundry, including coke, scrap, pig iron and limestone, are unloaded in the stock yard, where the cupola charges are weighed and are elevated to the charging platform. Lumber for patterns, after being partially seasoned in a shed provided for that purpose, is kiln dried before being delivered to the pattern shop. All of the buildings are well above high water mark, but the property not enclosed by the fence is at a lower level, thereby affording a dump for the disposal of foundry refuse. In addition to the standard gage tracks previously mentioned, an industrial railway system serves all of the manufacturing buildings.

Arrangement of the Plant

As shown in the ground plan, Fig. 14, the machine shop and the foundry have been built at right angles to each other, and the pipe yard and pipe storage shed are east of the machine shop, while the office building is south of the machine department. On the north and west sides of the foundry is the yard for the storage of flasks. The pattern storage buildings are north of the foundry, while at the south side of the casting department is the stock yard for the storage of raw material. The lumber shed is southeast of the machine shop and east of this building is a small storage house for supplies and tools.

Patterns and flasks are delivered to the foundry at the side nearest the molding floor, while the stock for the cupolas is stored in a yard on the opposite side of the foundry, convenient to the cupolas. The casting cleaning department is in one end of the foundry, near the machine shop, and after being cleaned the castings are delivered directly to the main bay of the machine shop for the machining operations or to the casting storage section in one corner of the shop. The cars in both the foundry and machine shop are loaded by overhead traveling cranes. Both buildings are of steel construction, the machine shop being 432 feet long and 128 feet wide, the foundry 320 x 176 feet and the power house 128 feet long and 55 feet wide. The buildings are all provided with brick curtain walls and cement tile roofs, supported by steel trusses. The buildings are provided with exceptionally high windows, which insure ample light.

The three pattern storage buildings are each 96 x 64 feet, three stories high. These buildings are of fireproof construction and are sheathed with

FIG. 1—A VIEW OF THE MIDDLE BAY OF THE BEST MFG. CO.'S MACHINE SHOP

FIG. 2—A VIEW OF THE VALVE TESTING DEPARTMENT

FIG. 3—THE CORE ROOM WITH THE CORE OVENS IN THE BACKGROUND

corrugated steel. The lower floor of each pattern storage is arranged for the heavier patterns, while the lighter models are stored in racks containing three shelves each. These racks are all lettered and numbered and the patterns are arranged according to size. Each pattern is carefully indexed and its location in the pattern storage department is specified on every job ticket. The distance from the pattern shed to the foundry is only 60 feet and the yard between these departments is devoted to the storage of flasks. To facilitate the handling of patterns and flasks, an industrial railway track extends the length of this yard with spurs leading into the foundry.

The foundry is divided into three bays, the one on the north side being devoted to the cleaning of castings, flask repairs and the lighter molding operations. Large floor work is molded in the middle bay and in one end of the south bay small valve castings are made. The opposite end of the bay is occupied by the core department and at the center of this building the cupolas are located. The chemist's laboratory is on the mezzanine floor, back of the cupolas. The brass foundry is located on an extension to the charging platform. The foundry is well equipped with labor-saving devices, including a large number of molding machines, and metal flasks are used for all standard work and a large number of metal core boxes also are in use.

Electric traveling cranes have been installed throughout the shop and in the middle bay there are two cranes of 15 and 30 tons capacity, respectively, built by the Morgan Engineering Co., Alliance, O. The core room is served by a 5-ton Morgan crane and in the north bay there is a 10-ton crane of the same type, as well as a 10-ton electric traveler, installed by the Whiting Foundry Equipment Co., Harvey, Ill. On the cupola side of the middle bay, two 5-ton traveling jib cranes are provided for delivering the iron and ladles to the various parts of the heavy molding floor.

Practically all of the large work made in the middle bay is bedded in the floor. Loam molding and other molding operations for heavy castings are confined to the middle bay. The molds for smaller castings and standard fittings are made in the side bay. The molding machines in use are of the power-ramming, roll-over and jarring types. Special flask equipment is provided for all standard work. The casting cleaning department is provided with pneumatic chipping

FIG. 4—DOUBLE NOZZLE MOLD BEDDED IN THE FLOOR

FIG. 5—A MOLD FOR PIPE OF LARGE DIAMETER

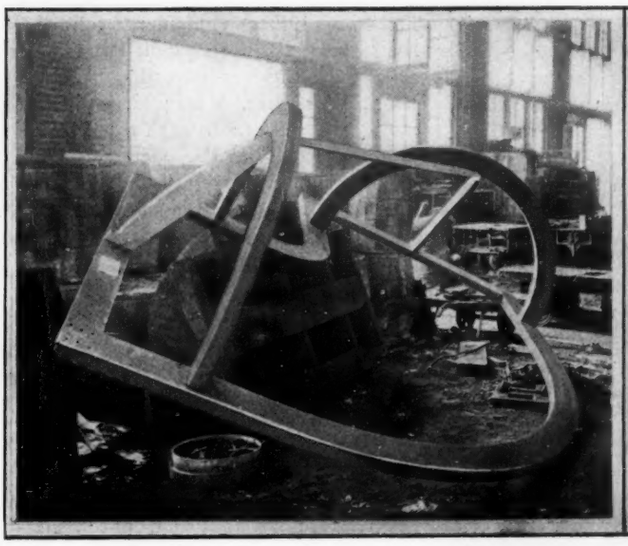


FIG. 6—A SKELETON PATTERNS FOR A LARGE ELBOW

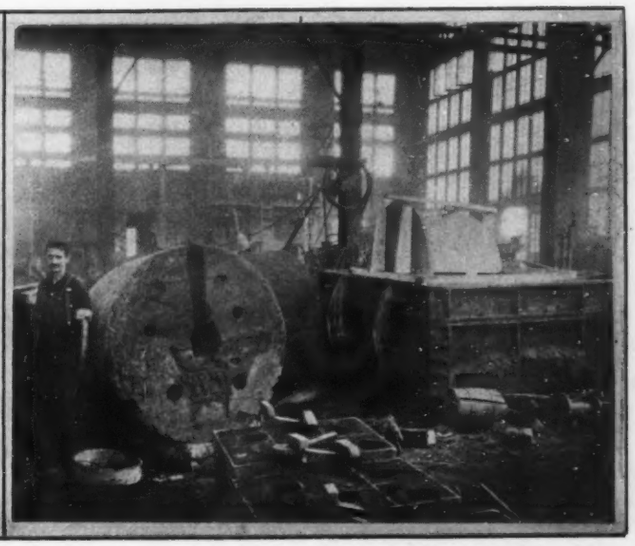


FIG. 7—A LARGE ELBOW CORE

hammers, tumbling barrels and a sand blast. The melting equipment consists of two cupolas, having capacities of 12 and 30 tons per hour, respectively. The cupola charging floor is served by an hydraulic elevator. On an extension to the charging platform is located the brass foundry, where castings are made for small valves, the brass parts of large valves and Monel metal sections. The metal is melted in Schwartz, fuel oil tilting furnaces.

For drying the cores three large core ovens are provided, respectively 25 feet long and 13 feet, 11 inches; 14 feet, 5 inches and 13 feet, 11 inches in width. The ovens are 12 feet, 7 inches high and a ground plan and front elevation, showing their general arrangement, is illustrated in Fig. 15. The ovens are heated by natural gas and are served by a 5-ton electric traveling crane, which commands the core department. The core oven tracks extend into the main bay, which permits of discharging the cores from the buggies in this department of the foundry. A view of the foundry, showing one of the traveling jib cranes, is illustrated in Fig. 9. Brass melting furnaces are shown in Fig. 12 and other foundry views showing special features of molding, are illustrated in Figs. 4, 5 and 7. In Fig. 4 is shown a double nozzle mold bedded in the floor. Fig. 5 is a view of the mold for a pipe of large diameter. Fig. 7 shows a large elbow core and Fig. 6 illustrates a skeleton pattern used for making a large elbow mold. A section of the core room with the core ovens in the background, is illustrated in Fig. 3.

The Machine Shop

The machine shop is divided into three bays with gallery floors over the side bays. Views of the middle bay are shown in Figs. 1 and 8. One end of the shop is set apart for the pipe bending and peaning departments. Castings are received from the foundry on cars operating on industrial tracks and are delivered to the casting storage department, either in the middle bay or the northwest corner of the shop. The successive machining operations on flanges are performed in the north end of the shop. They are first delivered to the boring and tapping machines, next to the facing lathes, then to the drill presses, from which they are taken to the stock department. Large fittings and valves are machined on the boring mills, planers and lathes and small valve bodies are machined on turret lathes, which are arranged near the boring mills. Smaller parts and fittings are machined on lathes in the east side of the shop and all valves are assembled on the fitting floor in the northeast corner. From the fitting floor the valves are delivered to the

FIG. 8—ANOTHER VIEW OF THE MACHINE SHOP

FIG. 9—VIEW OF THE FOUNDRY, SHOWING THE TRAVELING JIB CRANES IN THE FOREGROUND

testing department, Fig. 2, after which they are taken to the stock department.

Machine Tool Equipment

Electric drive is used throughout the shop, the larger tools being provided with individual motors, while the smaller machines are arranged in groups for belt drive from countershafts. The method of supporting the main shafts and the countershafts is illustrated in Fig. 11. It will be noted that the hangers for the shafting are suspended from brackets attached to the columns, arranged in such a way that the belts to the countershafts do not encroach upon the space in the middle bay. The countershafts are so arranged that tools can be belt-driven in either the middle or the side bays. The machine tool equipment consists of a large open-side planer, vertical and horizontal boring mill, turret lathes, engine lathes, large and small tapping machines, double-head facing lathes, multiple-spindle drills, single drills, a group of pipe-threading machines and other special tools. The lathes are of various types, having been installed by the New Haven Mfg. Co., New Haven, Conn.; Pond Machine Tool Works, Plainfield, N. J.; and the R. K. LeBlond Machine Tool Co., Cincinnati. The small boring mills were furnished by the Betts Machine Co., Wilmington, Del.; multiple spindle drills, Manning, Maxwell & Moore, New York City, and the tapping machines were furnished by Baker Bros., Toledo. Other equipment follows: Drill presses, Niles-Bement-Pond Co., New York City; radial drills, Prentice Bros., Worcester, Mass.; large boring mills and planer, Niles Tool Works, Hamilton, O., and the open-side planer, Detrick & Harvey Co., Baltimore.

The jib cranes in the machine shop were installed by the Shepard Electric Crane & Hoist Co., Montour Falls, N. Y. Each of the larger tools is served by one of these cranes and each group of two or more of the smaller tools is similarly commanded. These jib cranes are provided with 2-ton electric hoists. A 3-ton girder crane serves the assembling and small lathe department in the north end of the east bay and the middle bay is commanded by 5, 10 and 15-ton electric traveling cranes, installed by the Morgan Engineering Co., Alliance, O. The pipe shop is served by a 15-ton electric crane.

For artificial illumination, flaming arc lamps have been provided, which are located above the crane runways, while each tool is provided with an incandescent lamp hung from a flexible cord and provided with a pipe support for fixing the light in any stationary position.

Hydraulic Testing Equipment

For testing purposes, the hydraulic power, up to 800 pounds per square inch, is taken from the lines serving the elevators and pressures up to 1,500 pounds are provided by a triplex pump. Hydraulic pressures up to 10,000 pounds are obtained by hand pumps of special design. The pipe bending department is located in the south end of the machine shop. In this department flanges are attached to pipe by the Van Stone shrinking and peaning processes and steel nozzles are also welded onto pipe for headers. When preparing a pipe for bending it is filled with sand by gravity from an overhead hopper. The ends are then plugged and the pipe is placed in a heating furnace and that portion which is to be bent is heated to a high temperature. A plan and section of this furnace is shown in Fig. 16 and a pipe which has just been removed from the furnace onto the table, where it will be bent, is illustrated in Fig. 13. After heating, the pipe is rolled onto the bending table where it is bent around pins and forms by an electric winch. The pipe is filled with sand for the purpose of preventing it from buckling while it is being bent. After the pipe has been bent the sand is discharged into a tank below the floor, from

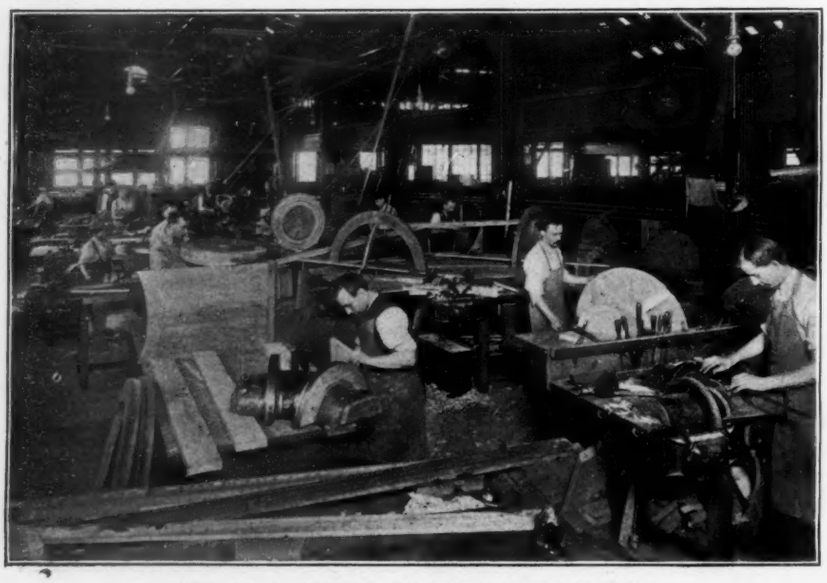


FIG. 10—A CORNER OF THE PATTERN SHOP

which it is later blown into the gravity hopper for subsequent use. A smaller furnace is provided for heating the ends of pipes for Van Stoning. When heated to the proper temperature the pipe is clamped in a machine and the end is rolled over at right angles to the center line. After the other end has been rolled, the pipe is swung into a double head lathe and the roll-over or lap is faced at an angle of 90 degrees to the pipe. In the welding department steel nozzles are welded to the pipe. The opening for the nozzle is cut into the pipe by the welding flame and after fitting the nozzle, the flame is applied to the joint between the nozzle and

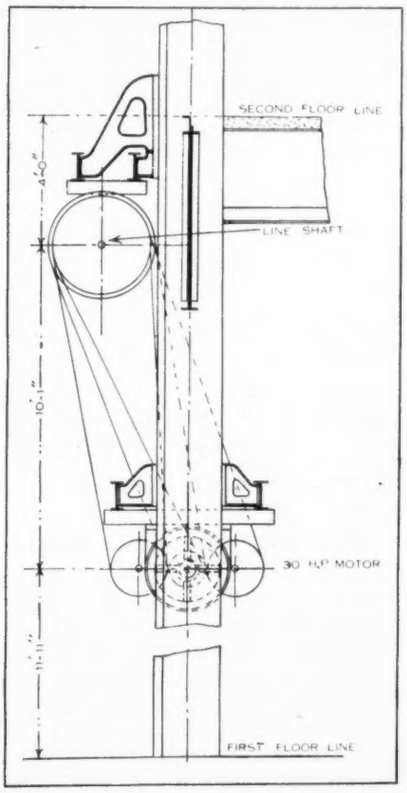


FIG. 11—METHOD OF SUPPORTING THE MAIN AND COUNTER-SHAFTS

the pipe for welding the two together. The lathe used for facing the Van Stone laps is 48 feet between heads, which permits of facing the flanges on a pipe or header 48 feet in length.

Patterns

For the regular fittings, solid pine patterns are used and mahogany is the material from which the standard patterns up to 10 inches in diameter are made. The flanges are bound with brass and the facing plates have iron rims. For all standard patterns iron core boxes are used. For unions and

FIG. 12—THE BRASS FOUNDRY

other similar castings from ½ to 2½ inches, metal patterns are employed. The pattern shop, Fig. 10, extends across the north end of the gallery and along the two sides about one-half the length of the shop. On each of the side galleries the machinery is installed in duplicate, so that the patternmakers do not have to walk very far from their benches to the tools for the various sawing, planing and other operations. In the east gallery a dry kiln has been installed for seasoning lumber. The pattern shop equipment consists of band saws, furnished by the Atlantic Works, Inc., Philadelphia; a Watkin woodworker, lathes, trimmers, jointers, surfacers, sanders, etc., furnished by the Oliver Machine Co., Grand Rapids, Mich., and other grinding and finishing tools. The larger tools in this shop are driven by individual motors and the smaller tools are arranged for group drive. Artificial illumination is provided by Nernst lamps.

Tool Room

In the west gallery is located the tool room, where tools are made, repaired and stored. The equipment consists of two speed drills of the Niles-Bement-Pond type, Warner & Swasey lathes, Brown & Sharpe grinder and shaper, two Hendey Machine Co. lathes, two LeBlond lathes, two Prentice drills, LeBlond and Cincinnati milling machines, Niles-Bement-Pond and Gould & Eberhart shapers, a Foster & Holloway radial drill, and a hollow center lathe built by the Acme Machinery Co. South of the tool room is the brass working de-

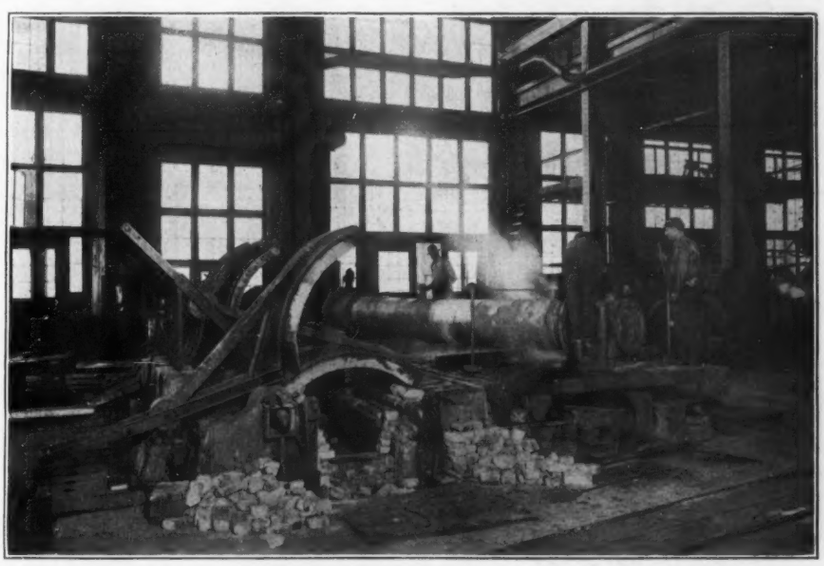


FIG. 13—THE PIPE BENDING FURNACE AND TABLE ....

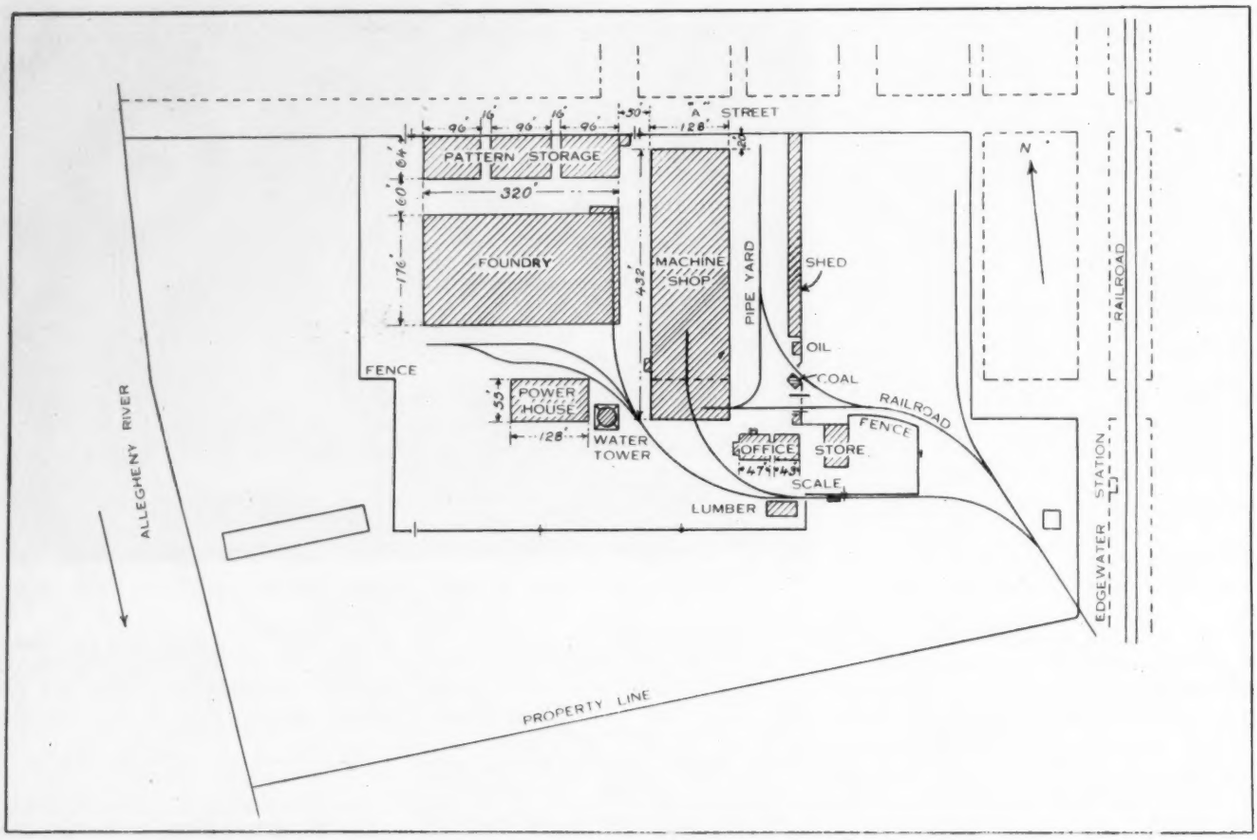


FIG. 14—GROUND PLAN, SHOWING THE GENERAL ARRANGEMENT OF THE BEST MFG. CO.'S PLANT

partment, in which unions, small valves and other brass parts entering into the construction of large iron and steel valves are machined. The equipment of this department consists largely of turret lathes, furnished by the Warner & Swasey Co., American Tool & Machine Co. and Lodge & Shipley. A mezzanine floor is located between the gallery and main floor, which is provided with modern sanitary arrangements.

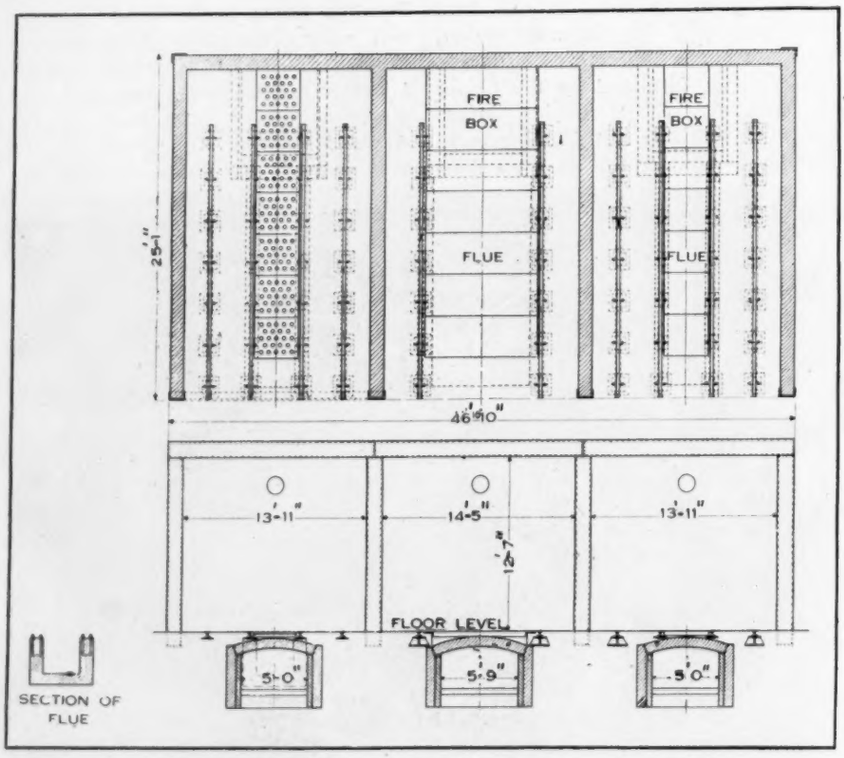


FIG. 15—PLAN AND END ELEVATION OF THE CORE OVENS

Enriching the Furnace Blast

According to a patent recently granted by the German government to Leo Franck, Differdingen, Luxemburg, the inventor proposes to enrich the air entering a blast furnace by passing it over barium dioxide, which, at temperatures ranging between 600 and 900 degrees Cent., gives off oxygen. The air is first dried and freed from carbon dioxide and then heated to the required temperature in a Cowper stove. After the supply of barium dioxide is used in the enriching process, the substance is subjected to the action of an air blast at a temperature of 350 to 500 degrees Cent. This regenerates the monoxide, converting it into the dioxide.

The Filer-Stowell Co., of Milwaukee, has increased its capital stock from $120,000 to $1,200,000. The increase was made for the purpose of making it easier to secure money at times when most needed. No extentions or additions in equipment will be made at the present time.

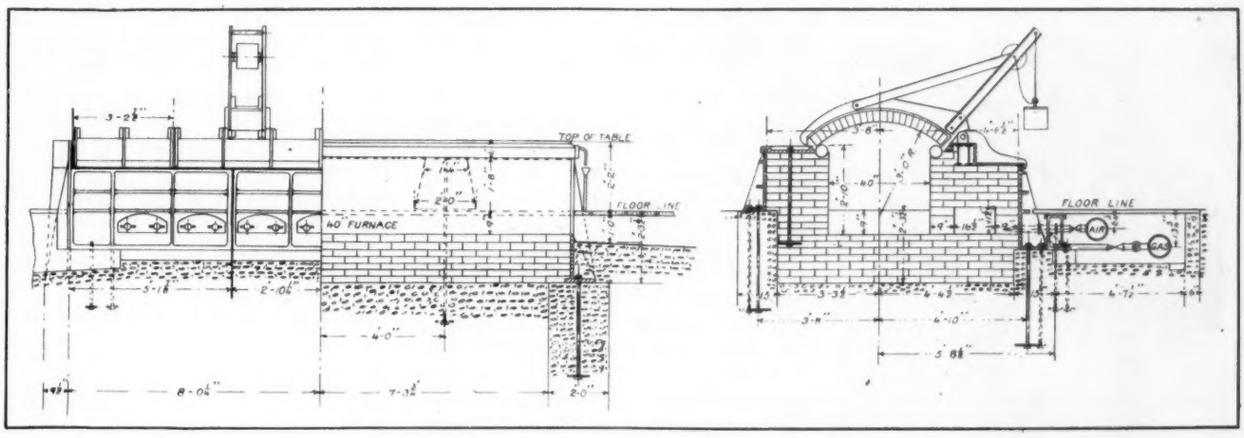


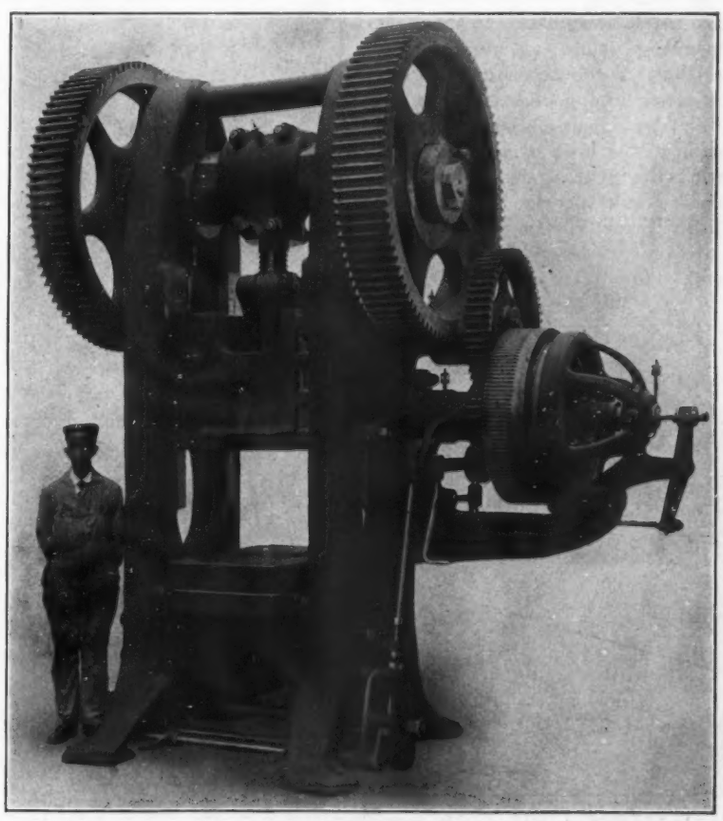
FIG 16—PLAN AND SECTION OF BENDING FURNACE

Press With Improved Friction Clutch

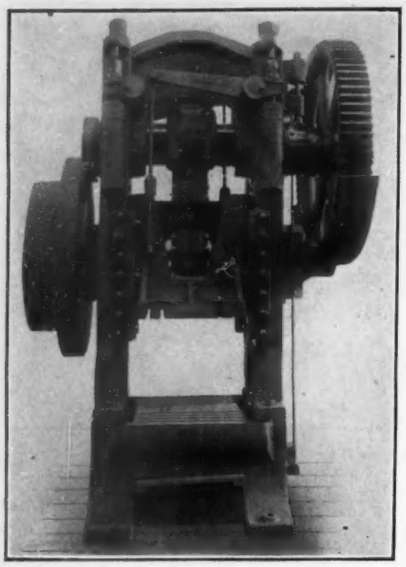
The Ferracute Machine Co., Bridgeton, N. J., recently built a press equipped with a new form of friction clutch and designed for pressures up to 200 tons. The clutch mechanism, as shown in the accompanying illustration, is mounted on a bracket attached to the side of the press, in place of an out-board bearing resting on the floor. This design permits of changing the position of the press without re-setting and re-aligning the clutch and the construction is such that the clutch and bracket form a unit which can be attached to various machines without altering their design. The brake spinder forms a part of the bracket. This spinder is a separate piece, but the face or seat to which it is bolted is cylindrical and the axis of the cylinder is the axis of the clutch shaft, thereby insuring perfect alignment. Another improvement has been made in the movement which relieves the clutch and effects the braking direct, without introducing additional mechanism. This effect is produced by a clutch disc, which is a horizontally moving double cone, located between the brake spinder and the fly wheel. Attached to the front and back rims of the clutch disc are wood sectors or blocks, the outer faces of which bear against corresponding surfaces on the inside rim of the fly wheel and clutch spinder. The blocks are adjustable radially by means of block screws, securely held by lock nuts. The blocks are attached to the clutch disc by bolts. A movement of the clutch disc in either direction effects the clutching or braking action, as desired, the clutch disc carrying both the clutch and brake frictional surfaces.

The treadle will act in any position as it is not necessary that the treadle be in a vertical position for the operation of the machine. The clutch can be adjusted at various heights by lengthening or shortening the treadle rod. The clutch shaft is journaled in two boxes and the gear teeth are cut in the enlarged portion of the shaft, producing a pinion which engages with the intermediate gear. The fly wheel revolves freely on the clutch shaft, the outer end of which is axially bored. A cylindrical rod or piston moves horizontally in this bored opening, the inner end of the rod being connected by toggles to the clutch disc, to which is imparted the small amount of motion and heavy pressure required. The clutch may be actuated by the treadle or a hand lever or may be automatically operated, as desired. All parts requiring adjustment are readily accessible. Some of the dimensions of the machine follow: Stroke of ram, 10 inches; adjustment of ram, 6 inches; distance of bed to ram at the top of the stroke and adjustment, 30 inches; distance between columns, 32 inches; extreme height, 127 inches, and weight, 38,000 pounds.

The Standard Underground Cable Co., Pittsburgh, has declared the regular quarterly dividend of 3 per cent and an extra dividend of 3 per cent, both payable Jan. 10.



FERRACUTE PRESS EQUIPPED WITH AN IMPROVED FRICTION CLUTCH



HEAVY SINGLE CRANK PRESS OF NEW DESIGN.

A Heavy Single Crank Press

A heavy, single crank press of new design for trimming nickel forgings for six-throw automobile crank shafts, but adapted with slight changes to all kinds of work in hot and cold metal, built by the A. Garrison Foundry Co., Pittsburgh, is shown in the accompanying illustration. This press is of the built-up type. The housing caps are in one piece and are secured by bolts running through the housings from the bottom of the machine, making it possible to remove the crank shaft without disturbing any nearby posts, piping or machinery.

Another new feature is the counterbalancing of the head by spring levers, following the general design used on a double-crank press, described in The Iron Trade Review Jan. 12, 1911. The use of springs in place of counterweights greatly reduces the weight of the moving parts and, therefore, their inertia, hence the pound on the clutch when starting the machine is greatly reduced. The cross-head is steel and the steel gears have cut teeth. The clutch is of the automatic crab type and is driven by a square shank forged solid upon the shaft, no keys being used. The dimensions of the press follow: Distance between housings, 37 inches; stroke, 6 inches; top of bed, right to left and front to back, 36 x 48 inches; cross-head face, right to left and front to back, 31 x 40 inches; distance of bed to cross-head face, stroke and adjustment up, 30 inches; diameter of main bearings, 8 inches, and weight, 40,000 pounds.

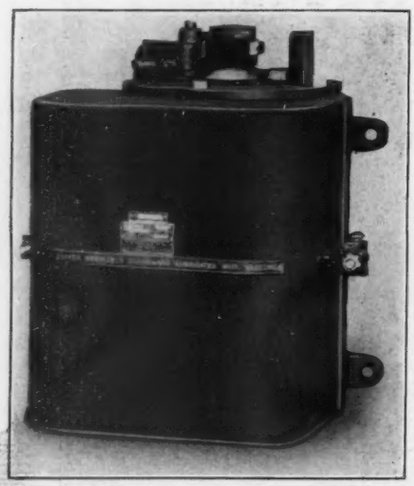


FIG. 1—SAFETY LIMIT STOP FOR ELECTRIC CRANES

A Safety Limit Stop for Electric Cranes

In electric hoist or crane service a limit switch to prevent the over-travel of the hoist block is necessary to guard against serious accidents. A limit switch is occasionally employed which merely opens the motor circuit. As the stopping point varies considerably and if the limit is set low enough to prevent dangerous over-travel when the hook is light and is coming up at high speed, it follows that a loaded hook at slow speed will stop the load at the desired point. The Cutler-Hammer Mfg. Co., Milwaukee, is now manufacturing the Palmer safety limit stop, which is shown in the accompanying illustrations. This limit switch will bring the block to rest within 2 inches of any given point, regardless of load or speed. The trip rope used with this device is independent of the hoisting ropes and replacing the latter does not require the adjustment of the switch. Tripping the switch not only opens the motor circuit, but establishes a dynamic braking action by connecting the series field across the armature. The motor is brought to a stop promptly. This device is made in capacities up to 25 horsepower, 110 volts and 50 horsepower, 220 or 550 volts.

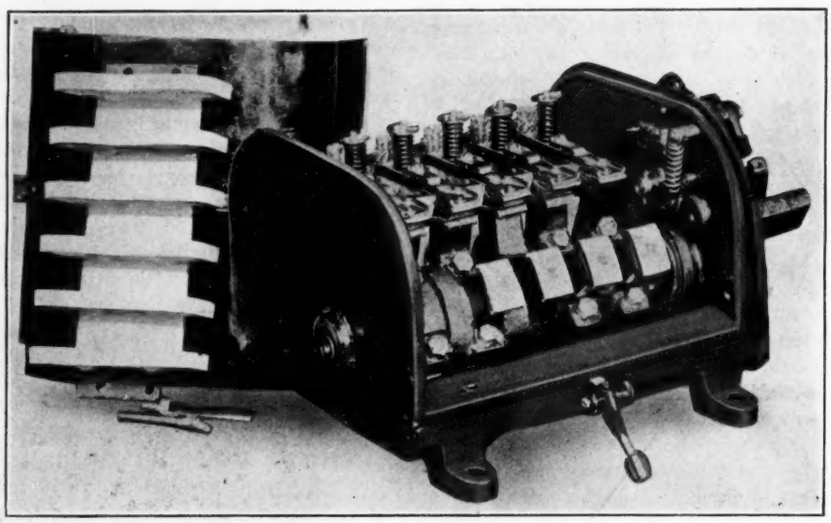


FIG. 2—SAFETY LIMIT STOP WITH CASING AND ARC SHIELD REMOVED

Swedish Iron Ore Production

During the past year, the production of Swedish iron ore was the largest on record, due to the more favorable conditions of the European market, and the holding back of orders from the previous year, on account of labor difficulties. In 1910, the entire output of iron ore amounted to 5,912,603 tons, of which 728,601 tons were concentrated to 362,614 tons, increasing the total production of directly serviceable iron ore to 5,549,987 tons, an increase of 1,664,941 tons over the previous year. The ore was obtained from 283 mines situated in 13 different districts, the major portion being obtained from the Noorbotten district of Lapland, which produced 3,511,954 tons, and the Kopparberg district of Sweden, which yielded 1,107,249 tons. The iron ore mines, and the concentrating and briquetting works furnished employment for 9,894 workers. Extensive contracts covering a period of several years were closed with iron manufacturers in the United States. Pig iron was made at 82 blast furnaces during 1910, the production being 603,939 tons.

The American Nut & Bolt Fastener Co. has declared the usual quarterly dividend of 5 per cent, payable forthwith.

Overfeed Stoker With Water-Cooling Features

Description of a New Machine Built by the American Stoker Co., With Details of Its Construction

Two economic reasons can be assigned for the adoption and use of stokers. The first is that more efficient combustion and consequent evaporation of water may be had by their use than by hand-firing; the second reason is that the cost of attendance is very much less than that of hand-firing. Furthermore, a larger amount of coal may be burned per square foot of grate area than can be successfully fired by hand, resulting in a largely increased capacity, the economy remaining practically the same per pound of fuel burned.

The American Stoker Co., 11 Broadway, New York City, has built underfeed stokers for 15 years, but recently extended its activities and is now manufacturing a machine of the overfeed type. Several installations of these overfeed stokers have already been made and are in daily operation at different plants.

The hopper into which the fuel is delivered is of the ordinary type, but in its bottom there are reciprocating pushers which shove the coal into the furnace upon the top grates. The travel of these pushers is adjusted by the attendant in accordance with the demands of the furnace. The back plate of the hopper, which is exposed to the furnace fire, is water-cooled. This prevents the destruction of the plate by the fire and, in addition, the plate remains comparatively cool at all times. This eliminates the trouble frequently experienced from the coal fusing in the hopper, thereby preventing the proper feed of the fuel. Another interesting feature of the construction of this hopper is the employment of a short pusher on either side. These pushers permit of feeding the fuel into the sides of the furnace in as large amounts as desired, regardless of the quantity of coal fed to other parts. As a result of this no air holes develop along the furnace walls.

Grate Surface

The entire grate surface, with the exception of the ash dump, is composed of a series of horizontal shelves arranged in steps, Fig. 1, extending entirely across the furnace and forming an incline of about 35 degrees. Abundant space is provided between the grates for the admission of air to the fuel. The grates are formed of two series, similar in design, but arranged alternately fixed and moving, as shown in Fig. 4. The fixed grates are securely bolted to the side risers adjacent to the furnace walls and additional stationary risers extend through the middle portion of the stoker. The moving grates are located between the fixed grates and are supported and securely bolted to moving risers, which are supported at the lower end by rollers and at the upper end by arms attached to eccentrics upon the stoker shaft. The number of revolutions of the stoker shaft can be controlled by the operator. The eccentrics impart a constant amplitude of travel so that their extent of motion is unchanged. The motion of the grates may be modified to suit the particular requirements of different kinds and grades of fuel. This is effected by a knuckle joint swing link and set screws. When using a grade of coal which cokes readily the grates may be adjusted to travel in the path of the ellipse, as shown in Fig. 4, or they can be easily changed so that the forward motion may be in a straight line, while in retreat the grates may rise more or less than in the arc of an ellipse, carrying the grates at all times clear of loose coal which may lie upon the rear of the grate underneath. The motion of the grates is so that the coal at all times is compelled to travel measurably even and at a uniform thickness from the top or front of the furnace to the rear. Each grate, in its relation to the next grate, serves as a positive pusher. This applies not only to the

FIG. 1—REAR ELEVATION OF OVER-FEED STOKER, SHOWING DUMPING GRATES AND CUT-OFF PLATE

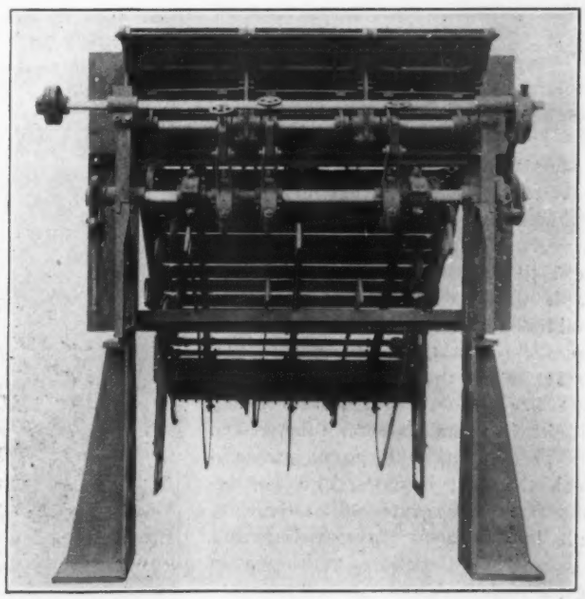


FIG. 2—FRONT ELEVATION OF STOKER, SHOWING OPERATING MECHANISM

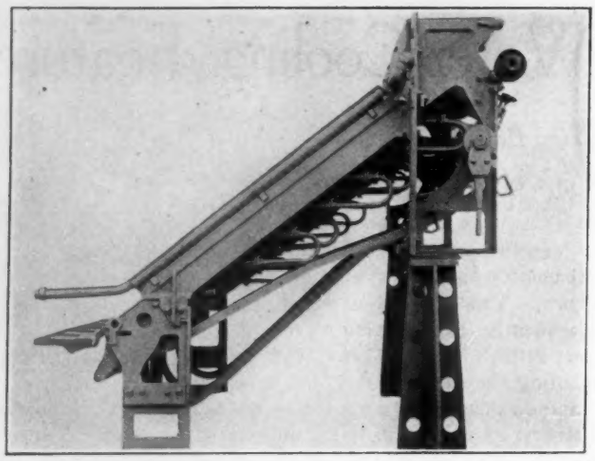


FIG. 3—SIDE ELEVATION OF STOKER, SHOWING WATER CONNECTIONS BETWEEN GRATES AND THE WATER-COOLED SIDE RISER

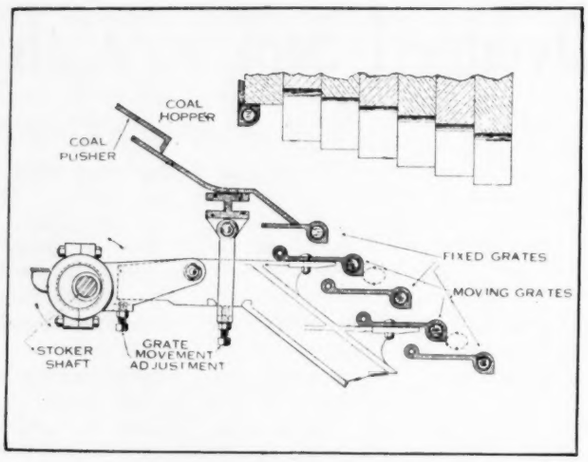


FIG. 4—SIDE ELEVATION OF STOKER, SHOWING GRATE MOVEMENT AND WATER-COOLING SYSTEM

coal and burning fuel, but to the ash and clinker as well, so that the latter, in due time, are precipitated upon the ash dump at the rear and bottom. On account of the over-lapping of the grates it is impossible for any fuel, regardless of its fineness, to sift through the grates into the ash pit.

Disposal of Ash

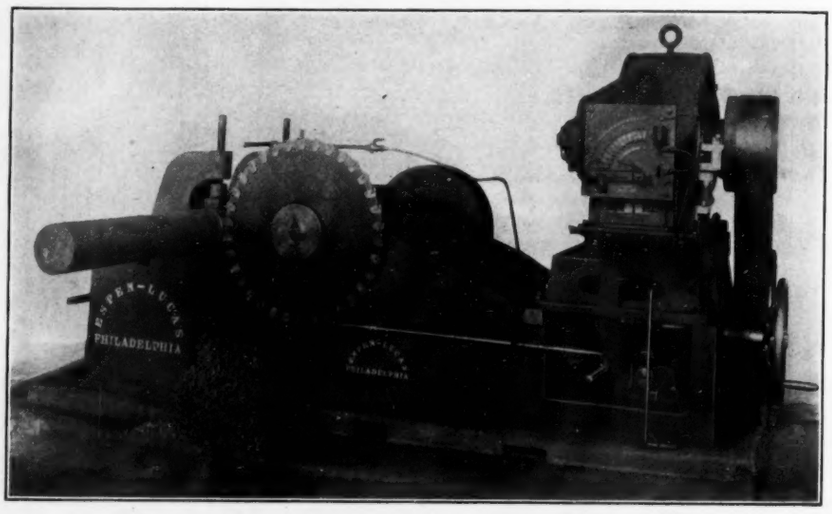
The ash and clinker can be readily separated from the good fuel by the operator. The ash dumping device is so arranged that neither during the process of dumping or at its conclusion is cold air admitted to the furnace, as the space occupied by the dump grate is constantly covered with burning fuel. The special dumping arrangement is shown in Fig. 1. Partly embedded in the bridge wall is a cylinder known as a water-back. It is constructed of steel boiler plate and is connected direct with the water circulation of the boiler. It is provided with a standard size boiler manhole and blow-off pipe for cleaning. It prevents the adhesion of clinkers to the bridge wall and thereby eliminates the expense of repairs to this wall. The cost of repairs and renewals of grate bars has been reduced to the minimum, as each grate bar is protected from burning by a continuous stream of water which passes through that portion in direct contact with the burning fuel. The grate bar consists of an extra heavy cold-drawn seamless steel tube, tested at a pressure of 1,000 pounds, around which the iron is cast. The connections from one grate to another are made by U-shaped pipes with unions of special construction, as shown in Figs. 2 and 3. These unions are provided with ground bronze ball seats and are also tested at a pressure of 1,000 pounds. Treating the moving grates as one unit and the stationary grates as another, water connection is made direct with the boiler to the bottom grate of each series; it then ascends from grate to grate until the top is reached, where another connection leads to the steam space of the boiler. The entire installation is without a moving joint.

New Cold Saw Cutting-Off Machine

A rapid production cold saw cutting-off machine, equipped with a saw blade 40 inches in diameter and having a capacity for sawing round and square bars up to 12-inch sections, is shown in the accompanying illustration. The feed and speed variations are such that the machine can be used for the sawing of materials at an advance of 6 inches per minute, and any amount of feed may be used, as the cutting capacity of the machine is limited only by the nature of the material that is being sawed.

The drive is through a main shaft, phosphor bronze worm wheel and crucible steel worm running in oil. The spindle extends the entire width of the carriage and the saw blade is bolted directly against the driving gear, thereby insuring rigidity and avoiding torsional strain between the gear and the saw blade. The saw carriage has a feed of from ½ to 6 inches per minute, which is obtained through a friction plate, controlled by a hand lever automatically locked, by which any change in cutting speed may be made while the machine is in operation. The saw carriage also has a quick return mechanism which is controlled by the same lever which effects the change in the cutting speed. An automatic stop for controlling the travel of the carriage is also provided.

The Espen-Lucas Machine Works, Philadelphia, builder of this machine, have discontinued the use of taper gibs under the carriage and heavy



RAPID PRODUCTION COLD SAW CUTTING-OFF MACHINE

solid steel shoes are used instead, which can be removed, trued and placed in position again when necessary. Any type of saw blade, including the inserted tooth or solid high speed steel types may be used. Either compressed air or screw clamps are furnished with the machine depending upon the requirements of the user. The machine in the accompanying illustration is equipped with screw clamps with special wheel heads for quickly clamping work. For the rapid handling of stock, where multiple cuts are to be made, the machine is equipped with a stock feed attachment of sufficient capacity to handle bars 12 inches in diameter and any length up to 20 feet.

The usual drip pan generally located below the saw at the front of the machine has been eliminated and a reservoir has been substituted for it, which is placed in the concrete foundation underneath the machine. The foundation proper forms the drain to the reservoir, which is located at a point easily accessible from the rear of the machine so that when necessary it may be readily cleaned out. In shop tests, as well as in practice, this machine has cut steel billets, 10 inches square and containing 0.36 per cent carbon in 4 minutes and 52 seconds; steel bars of 12-inch section and of the same carbon content have been cut in 6 minutes; 9-inch steel sections, 3 minutes; 6-inch steel sections, one minute and 27 seconds; round billets 5½ inches in diameter, 48½ seconds; round billets, 3½ inches in diameter, 27 seconds and a steel bar containing 0.45 per cent carbon and 3½ per cent nickel, 9 inches in diameter, has been sawed off in 3 minutes and 27 seconds.

The machine is powerfully geared, the gearing being cut from solid hammered high carbon steel forgings. Either belt or motor drive may be used. The machine in the accompanying illustration is belt-driven by a 25-horsepower motor through a 30-inch pulley with a 6-inch face. The machine occupies a space 16 x 9 feet and weighs about 30,000 pounds.

Hydraulic Press for Baling Scrap

Illustrated herewith is an interesting machine for baling loose scrap, which has been recently placed on the market by the Logemann Bros. Co., Milwaukee. The function of the machine is not only to provide a satisfactory and economical method of handling scrap metals, but to convert this loose material into desirable heavy melting stock.

While the per cent of loss in remelting loose scrap has not been determined accurately, it is apparent that when the material is compressed to a density of approximately 200 pounds in weight per cubic foot, the loss will be very much decreased. To satisfactorily reduce loose scrap to this density, extremely heavy compression is necessary and the finished bundles must not only be very compact, but the scrap must be so enmeshed as to dispense with binding.

The machine which has been designed by the Logemann Bros. Co. for this purpose operates with two distinct hydraulic presses of great power, so that from 100 to 400 tons pressure is exerted, depending upon the weight of the finished bundle and the thickness of the metal handled. It is claimed that scrap metal of all descriptions, whether it is to be melted in a furnace or crucible, can be efficiently handled by these machines.

The machine consists essentially of a reinforced steel box, *B*, Fig. 2, into which the scrap to be pressed is placed so it can be acted upon by the two hydraulic compressing rams, *L* and *H*, arranged with their axes at 90 degrees. The latter are controlled by the operating valves, *V*, and are known as the low pressure and high pressure rams, respectively. Two hydraulic accumulators are connected with the rams and the pull-backs and their functions will be explained in detail later. The compressing box, *B*, is closed by a reinforced sliding cover when the machine is in use. After the box has been filled with scrap and the cover clamped tight, water is turned into the low pressure cylinder, *L*, which moves the full length of its stroke. At the same time the control accumulator, *C*, is filling and when the low pressure ram has completed its work the pressure from this accumulator holds it in place against the side thrust produced by the action of the high pressure ram. After the low pressure ram has been cut off, the water is admitted to the high pressure ram, *H*, which reduces the scrap to a tight bundle having a density of 200 pounds per cubic foot. This, it will be noted, is 42 per cent of the density of solid steel.

When the bundle has been fully compressed, the center valve of the three operating valves is opened, thus

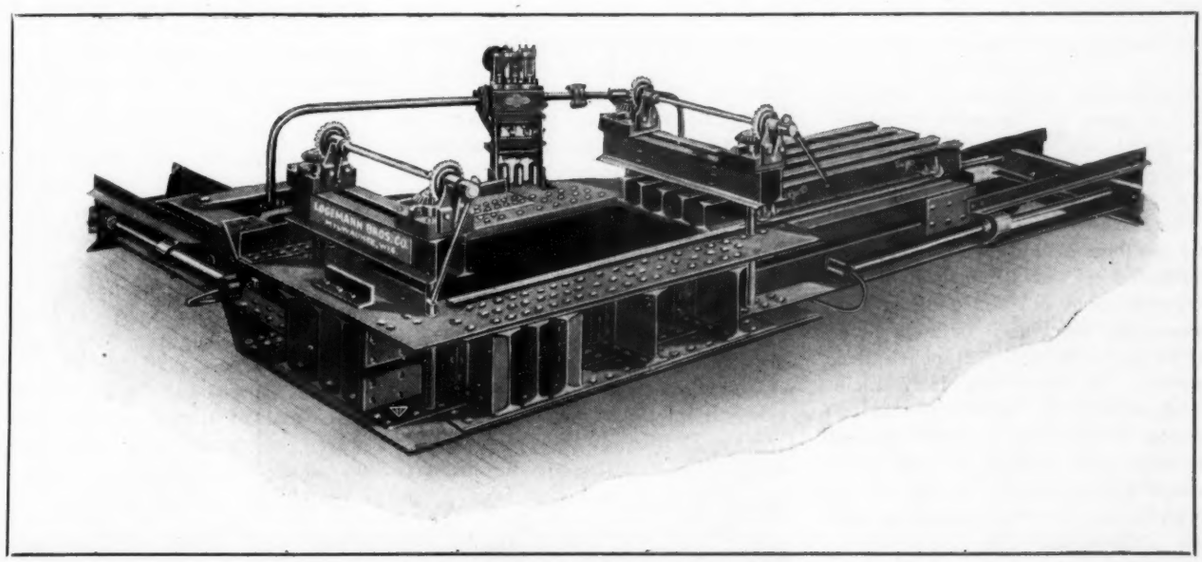


FIG. 1—HYDRAULIC PRESS FOR BALING LOOSE SCRAP

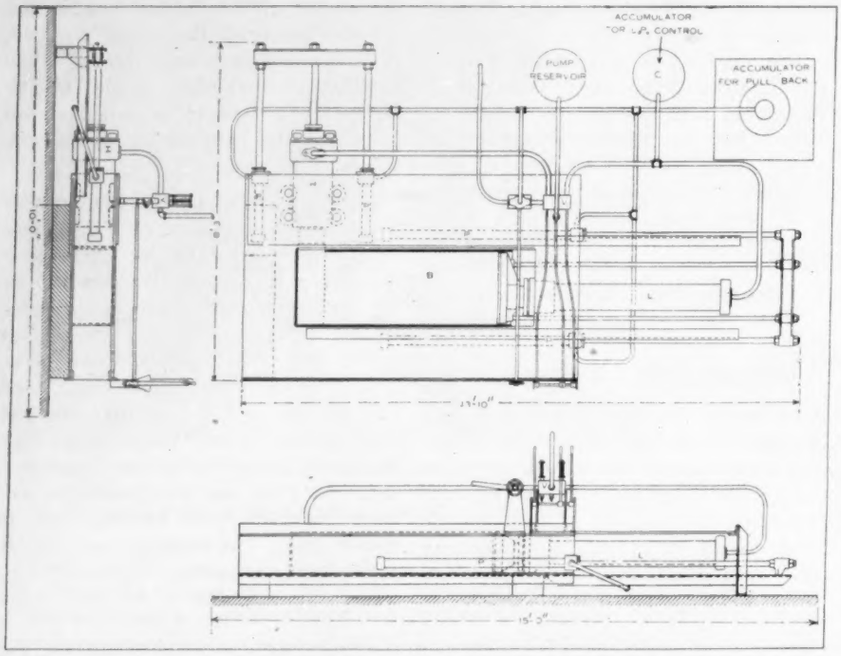


FIG. 2—SIDE AND END ELEVATION OF HYDRAULIC PRESS FOR BALING SCRAP

permitting the water in the cylinders to flow back to the pump reservoir. The rams are moved back to their initial position by pull-back cylinders, *P*.

The machine is built in several sizes. The medium or 150-ton size produces bundles 8 x 9 x 12 inches in size, weighing about 110 pounds. The scrap box on this machine is 60 inches long, 22 inches wide and 12 inches deep. The low pressure ram is 7 inches in diameter and operates under a maximum pressure of 1,000 pounds per square inch, this pressure being limited by the action of the control accumulator, *C*. The travel of this ram is 52 inches. The high pressure ram is 8 inches in diameter and operates up to 5,000 pounds per square inch pressure. Its stroke is about 14 inches. The scrap box is heavily reinforced by plates and angles riveted into the form of deep Z-bars and also by I-beams, as shown in the illustrations. The cover is reinforced with four 6-inch I-beams, and is easily moved back and forth by a chain and sprocket gear. The cover is fastened by quick-acting eccentric clamps.

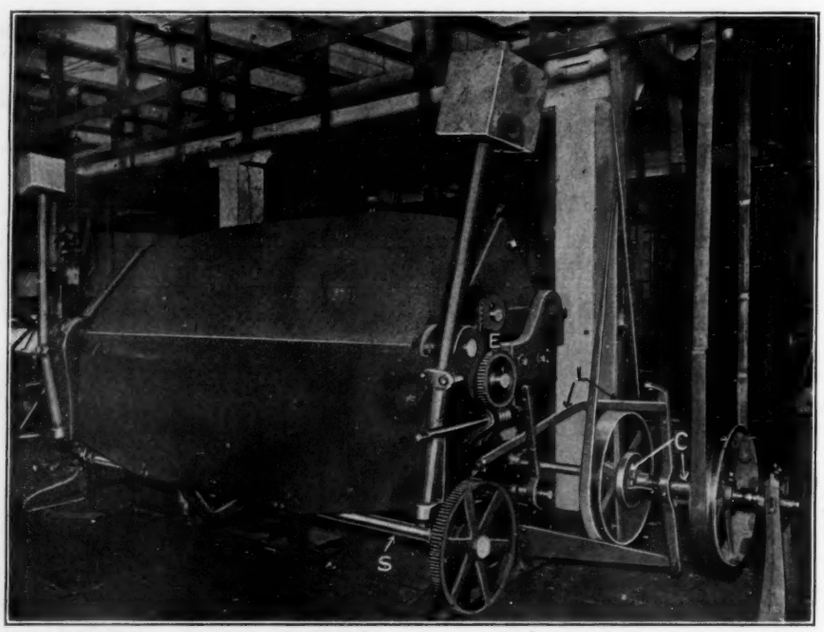
The necessary hydraulic pressure is furnished by a Logemann six-cylinder, horizontal, motor-driven pump. This pump has three high-pressure and three low-pressure cylinders and is provided with an automatic release valve which cuts out the low-pressure cylinders when the load on them becomes too heavy. When used in connection with the scrap bundling press, the pump first delivers a large quantity of water at low pressure until most of the compressing is done, when the low-pressure cylinders are automatically cut out and the high-pressure plungers finish the work at lower speed.

By the use of two rams working at right angles, as in this machine, the scrap can be sufficiently enmeshed so as to dispense entirely with binding. The use of two rams is one of the distinct features of this machine, which, together with its great power, makes it specially adapted to handle large quantities of heavy scrap too stiff to be bundled by the ordinary methods. The machines have a capacity of from one to three tons per hour.

A New Power-Driven Brake

A heavy power-driven brake, designed to bend 3/8 inch plates in 10-foot lengths, has recently been constructed by the Dreis & Krump Mfg. Co., Chicago, for the Chain Belt Co., Milwaukee. The frame of the machine consists of steel castings at the ends, with heavy steel plates forming the bed so arranged as to act as girders, the greatest stress being directed against the edges of the various plates. In order to protect the edges of the upper jaw and the apron from rough usage, special hard steel bars are screwed to these parts. The jaws are operated by eccentrics shown at *E* in the accompanying illustration, the eccentrics being rotated by a worm gear. The eccentrics are so arranged that the jaws open quickly and wide, but when in the clamping position are near their dead center so that heavy pressure can be applied to the plate. The lower part of the connecting link which carries the eccentric bushing is split vertically and clamped by a large bolt. By slightly loosening the bolt and revolving the bushing the pressure on the material can be regulated with great accuracy. Each end operates independently and on short work, only one end need be used. Full length plates can be worked by one man, since one end can be clamped on the mark and the other end of the plate can then be moved as much as desired without disturbing the first mark.

Simple set screws in the rear of



POWER BRAKE FOR BENDING HEAVY PLATES

the lower steel casting provide for the bending of light or heavy material by moving the upper jaw forward or back. When moved back, the greater space between the edge of the upper jaw and the apron produces a round bend, a sharp bend being produced when the jaw is brought forward.

As shown by the illustration, the apron is balanced so that practically no power is absorbed in moving its dead weight. The apron is rotated by a rack meshing with a pinion fitted on the shaft *S*. A movable stop gage is fitted to the rack and may be adjusted to stop the apron at any desired angle.

One of the principal features of the machine are the clutches shown at *C*. The machine is designed for belt drive from a countershaft. There are two loose pulleys on the drive shaft fitted with open and crossed belts respectively, so that they run in opposite directions. A clutch is fitted to each pulley, by means of which the motion is transmitted to the main driving shaft. Both clutches are operated from the same lever, being so arranged that when one is engaged the other is released; also, when the lever is in the neutral position both clutches are released. The clutches are simply flat discs and transmit the power by the friction between their surfaces. The discs are forced together by the usual cone and bell crank arrangement. These clutches permit the brake to be stopped instantly under full load. The connecting link, *L*, which is attached to the clutch lever, extends underneath the machine and is arranged so that the automatic stop gage, referred to, throws off the power when the plate has been bent to the desired angle. These machines are also built to bend ½ inch plates, 16 feet in length.

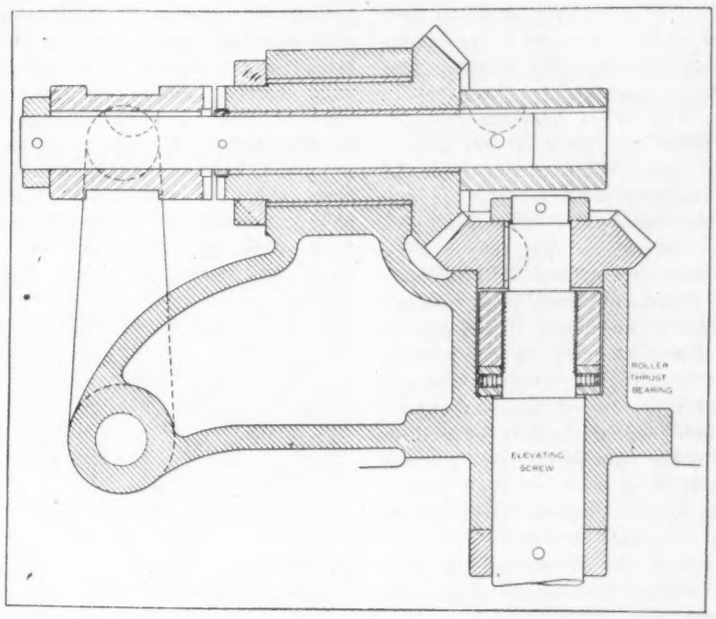


FIG. 2—SECTIONAL VIEW OF THE ELEVATING MECHANISM

George M. Elliott, aged 48, a partner in the Elliott-Blair Cold Rolled Steel Co., of New Castle, Pa., died Dec. 28, of pneumonia. He came to New Castle from Pittsburgh, 17 years ago with his four brothers, and entered into the iron and steel business.

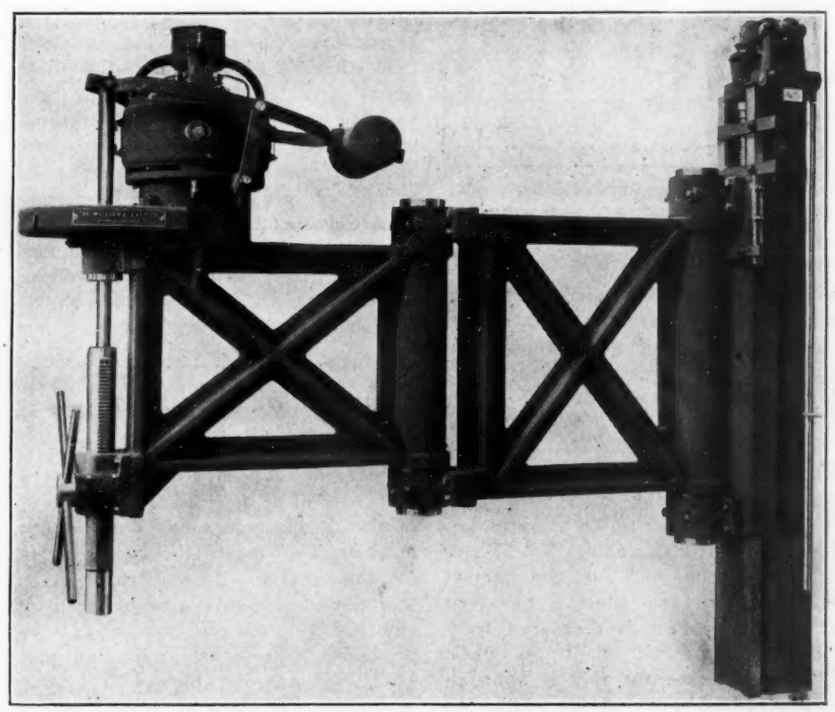


FIG. 1—WALL REAMING AND DRILLING MACHINE, BUILT BY THE WM. E. GANG CO.

Wall Reaming and Drilling Machine

The wall reaming and drilling machine, shown in the accompanying illustrations, is one of a number furnished to the McClintic-Marshall Construction Co., Pittsburgh, contractor for the steel work for the Panama canal locks, by the William E. Gang Co., Cincinnati. This machine is used principally for drilling and reaming and is attached in gangs to the columns or legs of a movable steel structure similar to a gantry crane. The double hinge arm, Fig. 1, consisting of two 4-foot sections, has a reach of 8 feet 7 inches from the center of the spindle to the face of the wall plate, and has a vertical travel on the wall plates of 3 feet 5 inches. The elevating mechanism is illustrated in detail in Fig. 2. A 2½-inch elevating screw is hung on a roller thrust bearing in a bracket which can be set on either side and connects by miter gears and sliding clutch with the power shaft. In the McClintic-Marshall installation the elevating mechanism for a group of machines was driven by one motor. All of the bearings of this machine contain bronze bushings. The vertical movement of the arm is controlled by an elevating gear bracket and the slotted bar, Fig. 1, is the adjustable stop for limiting the height of travel. The elevating lever is locked in the neutral position.

A pull of less than 10 pounds is

sufficient to move the arm to any position as it is provided at the hinges or trunnions with roller bearings and ball thrust bearings, as illustrated in Fig. 3. The roller bearings run between inner and outer sleeves and in case of wear these sleeves can be easily renewed without affecting the steel trunnions. The trunnion journals are capped so that they can be easily taken apart, and to insure accurate alignment, they are tongued and grooved and taper dowel-pinned.

The motor mounted on the forward gate or arm, Fig. 1, is of the Crocker-Wheeler type, 3¼ horsepower capacity, variable speed, and is geared directly to the spindle by steel gearing. The spindle is made of high carbon crucible steel and operates in a bronze bushed steel quill or sleeve. Its vertical traverse is 26 inches. A steel guard protects the spindle gear. The counterbalance acts directly on the spindle, which is moved up and down by a steel rack and pinion and pilot wheel. The pilot wheel levers are securely screwed into the steel pinion head and are pinned in position to prevent working loose. The net weight of the machine, including the motor on the arm, is 7,000 pounds.

A Peat Producer Gas Plant

A peat gas plant has been in successful operation in Ireland for the past three months, according to Engineering, of London. The plant was installed at a factory in Portadown and has replaced a producer gas plant. The peat is air-dried, being cut from the bog and stacked during the summer. As cut, the peat contains about 85 per cent of moisture, and during an average season this can be reduced by air-drying to 26 per cent. The plant is guaranteed to work with peat containing 45 per cent moisture. It consists of two producers of 200 horsepower capacity each, with coke scrubber, tar extractor, sawdust scrubber, exhauster and expansion box. The air-dried peat is fed in block form, as cut, into a hopper above the producer, from which it falls into the producer as combustion proceeds. The gas is drawn off through the coke scrubber and washer, to the tar extractor, where the tar is extracted by centrifugal action. It then passes to the sawdust scrubber, and is delivered to the gas holder by a high-speed fan, which also draws it through the plant.

The gas produced has a value of about 140 British thermal units, and is similar to that produced from Welsh anthracite, but contains slightly less hydrogen. The approximate analysis of the peat is water, 18.98 per cent; volatile matter, 55.17 per cent; fixed carbon, 24.75 per cent; ash, 1.10 per cent. The ultimate analysis showed carbon, 44.6 per cent; hydrogen, 5.42 per cent; nitrogen, 0.97 per cent; ash, 1.10 per cent; moisture, 18.98 per cent, and oxygen, by difference, 28.93 per cent. The tar produced was found to contain the following: Water, 49.7 per cent; light oils, distilling below 230 degrees Cent., 5.8 per cent; middle oils, distilling at 230 to 270 degrees Cent., 8 per cent; heavy oils, distilling above 270 degrees Cent., 19.4 per cent; coke left after distillation, 10.3 per cent; loss, 6.8 per cent.

As originally designed, the coke

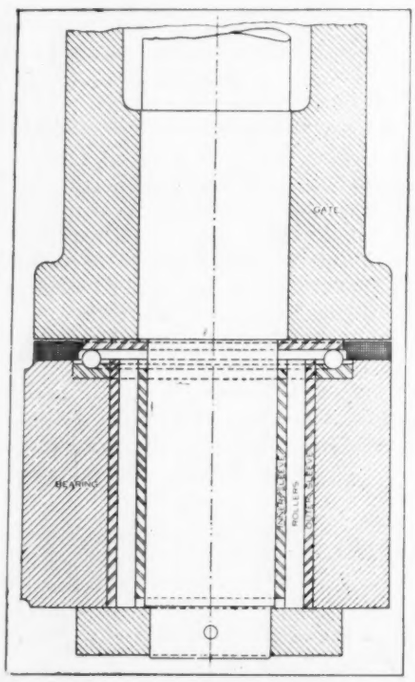


FIG. 3—SECTIONAL VIEW OF THE ARM, SHOWING THE ROLLER AND BALL THRUST BEARINGS

scrubber became clogged with tar, and it was, therefore, modified so that the greater part of the coke was removed, and a water shower introduced, against which the gas passes upwards. The cost of the peat delivered at the works is $1.50 per ton, and with an average load of 275-horsepower on the plant, the consumption is found to be slightly under 20 long tons, costing $30. There is a ready market for the tar at $8.75 per ton, and about 5 per cent of this by-product is recovered from the plant, or about one ton a week. The net expense for fuel is approximately $21.25 per week, while the amount of anthracite formerly used in the other type of producer gas plant amounted to 8½ tons per week, which cost $69.06.

Tata Iron and Steel Works

The construction of the new plant of the Tata Iron & Steel Works, Bengal, India, is progressing rapidly, according to the Engineering Supplement of the London *Times*. These works, when completed, will comprise the first modern iron plant in India. They are located at Sakchi, a village of Singhum, in Chota Nagpur, in the province of Bengal, and consist of two blast furnaces, having a capacity of 200 tons per day; four basic open-hearth furnaces of 40 tons capacity and the necessary equipment of rolling mills power generating units, coke ovens and other accessories. The works also are provided with a well-equipped machine shop and other adjuncts of a complete repair and construction plant, that will render the works self-contained in the wild country in which they are situated. The company controls its supply of raw materials, such as dolomite, limestone and manganese, as well as iron ore of satisfactory quality which is obtained from the company's own deposits in the Mourbhanj, Orissa. Although abundance of cheap labor can be obtained, the use of manual labor will be eliminated as much as possible by the installation of labor-saving machinery. The capacity of the coke ovens is 500 tons per 24 hours. The coal is carried mechanically into the crushers and after being pulverized, is discharged into an elevator from which it is delivered to cars for conveyance to the coke ovens. The rams which drive the coke into the ovens, and the pushers by which the coke is ejected, are all electrically-driven. It is expected that the first blast furnace will be blown in before summer, and the steel furnaces and rolling mills will be placed in operation shortly thereafter.

Pig Iron Production in Russia

In the report for the iron and steel industry of southern Russia during the first half of 1911, it is stated that 41 of the 51 blast furnaces were in operation. Two new stacks were also in the course of construction. In that period, 1,152,611 tons of pig iron and 284,717 tons of cast iron were produced. The coke production was 1,613,070 tons, of which 438,771 tons were manufactured at blast furnace plants.

MORE SHIPS BUILT

In 1909 at Government Yards in Comparison With Year 1904.

A preliminary statement of the thirteenth census of establishments engaged in ship building was issued Dec. 26, by the bureau of census, department of commerce and labor, at Washington. It includes the operations of ship yards building steel and wooden steam, sail and unrigged vessels; yachts, motor boats, row boats and canoes; and the manufacture of masts, spars, oars and rigging. The statement follows:

There were 1,353 establishments engaged in this industry in 1909 and 1,097 in 1904, an increase of 23 per cent.

The capital invested as reported in 1909 was $126,118,000, a gain of $4,494,000, or 4 per cent, over $121,624,000 in 1904.

The value of work done at private ship yards during the year was $73,360,000 in 1909 and $82,769,000 in 1904, a decrease of $9,409,000, or 11 per cent. The average per establishment was approximately $54,000 in 1909 and $75,000 in 1904. The decrease in value is due to the dismantling of a large ship yard in Connecticut after the completion of the Minnesota and Dakota; to a decrease in construction in Pennsylvania, and to a reduction of output in one large establishment in California. The work in the establishments referred to in the last-named states was largely for the government in 1904.

The general summary for government ship yards shows increases in all the items at the census of 1909, as compared with that for 1904.

The value of work done during the year increased 50 per cent; cost of materials, 42 per cent; value added by manufacture, 55 per cent; average number of wage earners employed during the year, 19 per cent; amount paid for wages, 30 per cent; number of salaried officials and clerks, 233 per cent; amount paid in salaries, 279 per cent; miscellaneous expenses, 819 per cent.

Ship Equipment Interests Enter Into New Campaign

Announcement is made of the consolidation of Williamson Bros., of Philadelphia, the American Ship Windlass Co. and the Taylor Stoker Co., of Providence, R. I., under the title of the American Engineering Co. with works and executive offices in Philadelphia. The merger dates from Jan. 1, 1912. The American Ship Windlass Co. was one of the pioneer manufacturers of ship windlasses, capstans, etc., in this country, and the Williamson Bros. Co. has occupied a similar position in the development of steering engines. The Taylor stoker was originally built at Providence, but the business was transferred to Philadelphia after the control of the American Ship Windlass Co. was acquired by the Williamson Bros. Co. in 1906.

COMPLETING DAM

Which Will Give Cambria Steel Co. Abundant Water.

Pittsburgh, Jan. 9. — The Quemahoning dam, the largest artificial reservoir in Pennsylvania, which the Cambria Steel Co. has been building near Johnstown, Pa., during the past two years, will be completed about October, 1912, and will greatly improve the water supply for the large steel works at Johnstown, Pa. During the past few days 15 miles of the pipe line was thoroughly tested. The Quemahoning dam was started in 1908 by the Manufacturers' Water Co., a subsidiary of the Cambria Steel Co., with a capital stock of $4,000,000.

The reservoir will cover about 1,000 acres, draws the water from a shed of about 90 square miles, has a capacity of about 11,000,000,000 gallons, and its breast is 1,100 feet wide, and 700 feet wide at the base. The water volume is sufficient to meet the demands of a city of 500,000 people. The pipe line is 15 miles long, the pipe at the reservoir being 66 inches in diameter and at the steel works 56 inches in diameter. With means of pipe in the bottom of the reservoir, 200,000,000 gallons of water a day may be drawn from the reservoir. Branch lines will supply the water for the Franklin plant, the Gautier department, and the steel works. In addition to the pipe used to draw off surplus water so that the reservoir may not overflow, there is a spillway 230 feet wide.

The construction of the Quemahoning dam has been under the supervision of Charles E. Curtis, of the engineering force of the Cambria Steel Co. F. P. Stearns is consulting engineer.

Will Train Patternmakers. — The board of education of New York City has approved a resolution relative to an agreement between that body and the Patternmakers' Association of New York, for the training of patternmakers' apprentices in the evening vocational schools of the city. The Patternmakers' Association has agreed that it will direct its apprentices to attend the evening school and it is proposed that the courses of study be conducted by the regular teachers and the practical workers of the association.

SUBSIDIARIES MERGED

With American Brass Co. and Will Be Operated as Branches.

The Ansonia Brass & Copper Co., Ansonia, Conn., and 99 John street, New York City, has merged with the American Brass Co., Waterbury, Conn., which owns the capital stock of the Ansonia company. This subsidiary company will hereafter be known as the Ansonia Brass & Copper branch of the American Brass Co., the change having become effective Jan. 1. There will be no change in the personnel of the management of the Ansonia company and the operating officers will be: Vice president, R. A. Cowles; manager, W. A. Cowles, and assistant manager, C. A. Cowles. The other subsidiaries of the American Brass Co., which ceased their independent corporate existence on Jan. 1, and which will hereafter be operated as branches of the American Brass Co., are the following: Benedict & Burnham Mfg. Co., Waterbury, Conn.; Coe Brass Mfg. Co., Torrington, Conn., and Ansonia, Conn., and the Waterbury Brass Co., Waterbury, Conn. In addition, the American Brass Co. will continue to control the Chicago Brass Co., Kenosha, Wis., the Waterbury Brass Goods Corporation and the Ansonia Land & Water Power Co. The American Brass Co. is capitalized at $20,000,000. Its officers are: President, Charles F. Brooker; vice presidents, Edward L. Frisbie, A. A. Cowles and James S. Elton; treasurer, John P. Elton, secretary, Gordon W. Burnham.

Oldest Employe.—Edward Hickey, of Ishpeming, Mich., the United States Steel Corporation's oldest employe on the Marquette iron range, gave up work on Jan. 3, when his name was placed on the company's pension list. Jan. 4 he was 70 years old. Mr. Hickey entered the employ of the Lake Superior Iron Co., now a Steel Corporation subsidiary, in 1864, taking a position as a miner in the old No. 2 open pit, where he has been employed almost continuously ever since. His period of service thus has been 47 years, the most of that time as a foreman.

Twenty-five employes, mostly traveling men, of the L. M. Rumsey Mfg. Co., were banqueted by the United States Radiator Co. at the Mercantile Club in St. Louis, Friday night, Dec. 29. Chris Sodemann, district manager of the radiator company, was toastmaster, and delivered an address on boiler efficiency.

ELECTRIFICATION OF MILL

Discussed in England.—Utilization of Waste Gas Recommended.

Great interest was taken at a meeting of the Staffordshire Iron and Steel Institute held at Dudley, England, on Dec. 16 in the electrification of the Shelton bar mills owned by the Earl of Granville, at Hanley, Stoke-on-Trent. At that meeting, a full and detailed description of the mechanical equipment of the mills was given by W. H. Lake, one of the engineers of the works, and W. Simons, the manager, and other experts from north Staffordshire were present. The members of the institute paid a visit in the summer to the works and saw the mills in operation and Mr. Lake's description was therefore a very welcome supplement to that visit. The paper was followed by an interesting discussion, several members complimenting Mr. Lake on certain devices produced by himself quite peculiar to the local plant. Several speakers took the line that the equipment illustrated the necessity of taking full advantage of exhaust steam and other forms of wasted energy, while the old fashioned method of steam driving also found some strenuous advocates. The president of the institute (Isaac E. Lester) called attention to the tremendous waste of blast furnace gas in the Black Country, and suggested the formation of a great corporation to utilize this for the general sale of electricity in the same way that such sale has already been carried out in the Middlesborough district, where this cheap electricity is relied upon solely at a number of the works as their source of energy. The suggestion met with decided favor by the meeting.

Organizing Concern

The Canadian Metal Products Co., Ltd., is being organized with proposed capital stock of $500,000 7 per cent cumulative preferred stock and $1,000,000 common. It is said that the presidency will be offered to N. Curry, president of the Canadian Car & Foundry Co., Ltd. The company will erect a plant at Montreal to manufacture metal window frames and doors.

Power Contract Made

Pittsburgh, Jan. 9.—The Carnegie Steel Co. has made a contract with the Allegheny County Light Co., Pittsburgh, for power to operate part of the Painter mills, Southside, Pittsburgh. The contract calls for 1,000 horsepower. One unit of 500 horsepower will be used to operate the 10-inch merchant mill and a second unit of 500 horsepower will be used for the operation of punches, shears, straightening rolls, etc.

Charcoal and Other Irons in Car Wheels

To the editor of THE IRON TRADE REVIEW:

I have read with interest a communication on page 1090 of your issue of Dec. 21, 1911, on "Percentage of Charcoal Iron in Car Wheels."

The statement that "the total production of cast iron car wheels in the United States and Canada approximates 20,000 per day" is, if true, truly marvelous and it would be interesting to know how the data were obtained from which this estimate was made. I made serious efforts to gather all reliable information in regard to the annual production of chilled cast iron car wheels from governmental and various other sources in the preparation of a paper on "Manganese and Silicon in the Foundry," for the Pittsburgh convention of the American Foundrymen's Association, held in May, 1911, and stated therein as follows: "I have found it impossible to obtain any data regarding the annual production of 'mine' car wheels and 'street' car wheels, but official figures of the United States census bureau for 1900 show that there were 145,437 steam railroad cars alone built in that year, requiring 1,163,696 new wheels." I think the estimate of 20,000 wheels per day could be cut in half and would still be a liberal one.

Elsewhere the communication states that "more than 16,000 cast iron wheels are made daily, in the manufacture of which no charcoal iron is used, these being largely a remelt of scrap wheels heavily loaded with from 0.12 per cent to 0.25 per cent sulphur, the bad effect of which being neutralized by the use of ferro-manganese, etc."

How did the scrap wheels become so heavily loaded with sulphur? The minimum amount given equals the maximum amount to be found in serviceable car-wheels and I feel confident in stating that no manufacturer ever put on the market car wheels containing a quarter of one per cent of sulphur! Does your correspondent mean to imply that car wheels, while in service, absorb sulphur from the atmosphere and thus become so heavily charged with that deleterious element?

He admits that the sulphur is "neutralized" by the use of ferro-manganese, but this is incorrect; it is not neutralized but it is largely removed from iron by ferro manganese by combination with the manganese then floating off; moreover, as ferro-manganese has been in general use for that very purpose in car wheel manufacture for more than 20 years, the wheels which are now scrapped presumably were so treated and sulphur was reduced in them at the time they were made to the second decimal point. The drop test adopted by the Master Car Builders' Association of 220 pounds weight falling 12 feet was devised, I believe, by the Pennsylvania Railroad Co. and I know was introduced about 1885-7 when the average weight of 33-inch car wheels was about 575 pounds and it was not very unusual for well annealed wheels to withstand 100 blows before breaking. The record given by your correspondent of a test wheel 33 inches diameter breaking at the "115th blow" does not seem remarkable when the weight of that type today is considered, namely 725 pounds, as stated in the communication.

I do not suppose any car-wheel maker doubts the superiority of cold blast charcoal iron for making chilled cast iron car wheels, but "hot blast" charcoal iron, such as is made today, is a very different material and in many cases is no better than coke iron. The changing conditions of iron manufacture compelled car wheel makers to look beyond the rapidly disappearing supply of cold blast charcoal iron nearly 30 years ago to the growing production of anthracite iron. Since then anthracite iron has in turn met its Waterloo and coke iron has taken its place.

Still the chilled cast iron car wheel survives and I have been informed by makers that this survival is largely due to the wonderful effect that a small addition of 80 per cent ferro-manganese in powdered form to the molten iron just before pouring has in desulphurizing and deoxidizing the metal, thus nearly doubling the tensile and transverse strength, reducing shrinkage, removing (not neutralizing) sulphur, and enabling car-wheel makers to continue to produce chilled cast iron car wheels, without cold blast charcoal iron, that are subjected to service vastly more severe than was ever known during the early days of railway development in this country, when all of the wheels were made of all cold blast charcoal iron!

In conclusion I hope your correspondent will inform your readers whether the Superior charcoal iron of which he writes is made with strictly "cold" blast or whether with "warm" blast or with "hot" blast.

ALEXANDER E. OUTERBRIDGE JR.,
1600 Hamilton street,
Philadelphia, Pa.

To Make Auto Parts

The Empire Gear & Mfg. Co., Indianapolis, Ind., the incorporation of which was recently noted, advises that it will manufacture motors, transmissions, rear systems and other mechanical automobile parts. A factory building has been secured and this has been fully equipped with machinery. The officers of the company are: President, Frank S. Clark; vice president, Charles H. Hurd; secretary, Howard M. Talbot, and treasurer, Albert H. Off.

Adds to Its Plant

The Atwood Mfg. Co., Conneaut, O., advises that its recent increase in capital stock was made to occupy the extra space in the buildings it now occupies, and to equip the same with the necessary machinery. The new space will be used for the manufacture of a modern cream separator, and a new valveless gasoline and kerosene engine, and to establish store room so as to allow the company to act as a jobber on different lines of farm implements and home power plants.

The Pittsburgh Coal Co. has declared the usual dividend of 1¼ per cent on preferred stock, payable Jan. 25.

IRON AND STEEL SECURITIES

Last week's trading on the New York stock exchange was featured by considerable activity in the early days, which later relapsed into dullness. Security prices ruled very irregular.

Monday the markets were closed because of New Year's day. Tuesday, the market was active and firm, prominent issues closing 1 to 3 points higher; the grain and cotton markets were also active and higher; foreign security markets were firmer. Wednesday, the market was reactionary and less active, prices closing 1 to 2 points lower; Berlin market was weak and lower, other foreign markets being firmer. Thursday, the market was reactionary with a heavy tone in the more prominent issues; Berlin market again was weaker. Friday, the market was irregular, the feature being the pressure on Union Pacific and United States Steel. Saturday, stocks rallied somewhat and closed firmer; cotton was strong and higher.

Money on call ranged between 4 and 2¼ per cent. Time money was quite active and was freely offered on easy terms. The actual conditions of clearing house institutions showed loans increased $15,374,000; net deposits increased $13,913,000; total reserve, $429,593,000, and the excess of reserve $27,239,100, an increase of $8,242,250. Non-member banks and trust companies showed loans decreased $3,985,900; net deposits decreased $883,700; reserve on deposits increased $1,689,600, and the percentage of reserve 19.13, against 18.7 the preceding week. Bank clearings for the week were slightly below clearings of the previous week and considerably less than for a year ago. Commercial failures numbered 407, compared with 281 the preceding week and 296 the corresponding week last year. Shares were sold to the number of 1,949,700, compared with 1,418,700 the preceding week, and 1,953,800 the corresponding week last year. Bonds, exclusive of government bonds, were sold to the amount of $18,435,000, compared with $15,145,000 the preceding week and $15,570,000 the corresponding week last year.

Copper Stocks.

New York.—Amalgamated Copper closed 66½, a net gain of ½.

	Clos'g Quo. Jan. 6	Changes in week.	Annual Meeting date 1912	Stock Outstanding	Basis.	Dividend Last Dividend	Date Last Div. Pay
Allis-Chalmers	1¼	— ¼		$19,820,000		.....	
Allis-Chalmers, pr	8	+ ½		16,050,000	7 cum.	1¾ Q.	Feb., 1904
American Can	12⅛	+ ¾	Feb. 6	41,233,300		.....	
American Can, pr	92¼	— ¼		41,233,300	7 cum.	1¼ Q.	Jan., 1912
Am. Car & Fdy	54	.....	June 27	30,000,000	2	½ Q.	Jan., 1912
Am. Car & Fdy., pr	116	—1¼		30,000,000	7 n. c.	1¾ Q.	Jan., 1912
American Loc	36¼	.....	Oct. 15	25,000,000	5	1¼ Q.	Aug., 1908
American Loc., pr	105⅞	.....		25,000,000	7 cum.	1¾ Q.	Jan., 1912
American Ship	49½	.....	Oct. 9	7,600,000	4	2 Q.**	June, 1911
American Ship, pr	103¼	—1¾		7,900,000	7 n. c.	1¾ Q.	Jan., 1912
Am. Steel Foundries	35½	+2½	Mar. 21	17,184,000	5	1¼ Q.	May, 1911
Barney & Smith	15	.....	June 4	2,000,000	4	1 Q.	Dec., 1907
Barney & Smith, pr	70	.....		2,500,000	8 cum.	2 Q.	Dec., 1911
Bethlehem Steel	31¼	— ⅝	April 2	14,862,000		.....	
Bethlehem Steel, pr	61	+ ¼		14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	43	—1½	Mar. 19	45,000,000*	5	1¼ Q.	Nov., 1911
Cambria Iron	44¾	+ ¾		8,468,000*	4	2 S. A.	Oct., 1911
Chicago Pneumatic Tool	47¾	+1½	Feb. 19	6,448,800	4	1 Q.	Jan., 1912
Colorado Fuel	27	+ ½	Oct. 21	34,235,500		1¾ Q.	April, 1902
Crucible Steel	125⅛	+ ⅜	Nov. 15	24,578,400		.....	
Crucible Steel, pr	82¾	— ⅛		25,000,000	7 cum.	1¾ Q.	Dec., 1911
Empire Steel	10	+5	Feb. 28	1,254,770		.....	
Empire Steel, pr	36	—4		2,500,000	6 cum.	2 S. A.	July 1911
Fay & Egan	70	.....	Feb. 20	1,000,000	7	1¾ Q.	Nov. 1908
Fay & Egan, pr	110	.....		1,000,000	7 cum.	1¾ Q.	Nov., 1911
General Electric	155⅜	+2⅜	May 14	77,281,200	8	2 Q.	Jan., 1912
Harbison-Walker	40	.....	Jan. 15	18,000,000	2	½ Q.	Dec., 1911
Harbison-Walker, pr	99	.....		9,600,000	6 cum.	1½ Q.	Jan., 1912
International Pump	33¼	.....	Dec. 10	17,762,500		½ Q.	Apr., 1905
International Pump, pr	83⅜	+ ⅜		11,350,000	6 cum.	1½ Q.	Feb., 1912
Lackawanna Steel	30	.....	Mar. 13	34,978,000		.....	
Lake Sup. Corp	28	+1	Oct. 2	40,000,000		.....	
New York Air Brake	55	—1	Mar. 13	10,000,000	6	1½ Q.	July, 1911
Niles-Bement-Pond	94	.....	Feb. 7	8,500,000	6	1½ Q.	Dec., 1911
Niles-Bement-Pond, pr	104	.....		2,000,000	6 cum.	1½ Q.	Nov., 1911
Otis Elevator Co	71½	.....	Mar. 18	6,358,600	4	1 Q.	Jan., 1912
Otis Elevator Co., pr	96	.....		6,375,300	6 n. c.	1½ Q.	Jan., 1912
Pa. Steel	60	.....	May 13	10,750,000		.....	
Pa. Steel, pr	101½	—1		20,587,500	7 n. c.	3½ S. A.	Nov., 1911
Pittsburgh Coal	18½	.....	Mar. 12	28,104,600		.....	
Pittsburgh Coal, pr	83½	+ ¼		27,071,800	7 cum.	1¼ Q.	Jan., 1912
Pittsburgh Steel Co., pr	101	.....	Oct. 7	7,000,000	7 cum.	1¾ Q.	Dec., 1911
Pressed Steel Car	34⅛	+ ⅝	Feb. 21	12,500,000		1 Q.	Aug., 1904
Pressed Steel Car, pr	102	+2		12,500,000	7 n. c.	1¾ Q.	Nov., 1911
Pullman	159⅞	+ ⅜	Nov. 13	120,000,000	8	2 Q.	Nov., 1911
Railway Stl. Spring	32	+1	Mar. 7	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring, pr	98½	.....		13,500,000	7 cum.	1¾ Q.	Dec., 1911
Rep. Iron & Steel	25⅞	— ⅝	Oct. 16	27,191,000		.....	
Rep. Iron & Steel, pr	85¼	+1		25,000,000	7 cum.	1¾ Q.	Jan., 1912
Sloss-Sheffield	44	+1½	Mar. 13	10,000,000	5	1¼ Q.	Sept., 1910
Sloss-Sheffield, pr	112	.....		6,700,000	7 n. c.	1¾ Q.	Jan., 1912
U. S. Pipe & Fdy. Co	17	+1	June 26	12,500,000		1 Q.	Dec., 1907
U. S. Pipe & Fdy. Co., pr	50	— ¾		12,500,000		1¼ Q.	June, 1911
U. S. Steel	68⅜	+1	April 15	508,302,500	5	1¼ Q.	Dec., 1911
U. S. Steel, pr	111	.....		360,281,700	7 cum.	1¾ Q.	Nov., 1911
U. S. Steel 5s	102	+ ¼		465,189,500	5	.....	
Va. Iron, Coal & Coke	83	.....	Sept. 17	9,073,680		5. †	Oct., 1907
Westinghouse Air Brake	155	+1	Oct. 1	14,000,000*		5 Q.‡	Jan., 1912
Westinghouse Electric	68	+2¼	June 12	3,998,700*	7 cum.	1¾ Q.	Jan., 1912

Par value of shares, $100, except those starred (*), $50.
**Includes last 1 per cent payment of 4 per cent extra.
†Stock.
‡Includes 2½ regular, 1½ extra and 1 special.

Boston.—Butte Coalition closed 23, no change; Calumet & Arizona closed 61¼, a net gain of ¼; Calumet & Hecla closed 435, no change; North Butte Mining closed 28, a net loss of ½; Quincy Mining closed 75, a net gain of 1.

Financial Notes.

The International Steam Pump Co. has declared the regular quarterly dividend of 1½ per cent on its preferred stock, payable Feb. 1.

The American Screw Co. has declared the regular quarterly dividend of 2½ per cent on its stock, payable Dec. 30.

The Harbison-Walker Refractories Co. has declared the regular quarterly dividend of 1½ per cent on preferred stock, payable Jan. 20.

The J. G. White & Co., Inc., has declared the regular quarterly dividend of 1½ per cent on preferred stock, payable Feb. 1.

The General Fireproofing Co., Youngstown, O., has declared a quarterly dividend of 1¾ per cent on its preferred stock, payable to stockholders of record Jan. 1, 1912.

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Words of Burning Truth

Little, if any, progress was made during the last year in improving the conditions as to the enforcement of contracts. In an interview published by *The Daily Iron Trade Review*, Jan. 3, George E. Day, secretary and manager of sales of the Youngstown Sheet & Tube Co., said:

"While the consumers are always looking for their last ounce of—not flesh, but steel, when the market is going up, they look for a way out and generally find it when the market commences to go down.

"Large and well-known concerns, some of the largest and best known in their line in this country, have no hesitation whatever in breaking their contracts under these conditions, and some of them have become so accustomed to doing it that they no longer even bother to offer an excuse.

"How any reputable concern can hope to preach the gospel of business integrity among its own associates and employes (so necessary when doing business) or hope to establish a reputation for high-grade integrity when openly doing violence to its contract obligations, is more than I can understand."

These are words of burning truth. The ease with which contracts for finished materials can be broken is positively disgraceful. The breaking of contracts is excused on the ground that it is customary to regard them as no more than options to buy, but nevertheless the result is demoralizing in causing a very much lower moral tone to prevail than if the carrying out of contracts were rigidly adhered to. Contract making causes no end of trouble and embarrassment to manufacturers, but they are largely to blame for present conditions. In the ore trade, the breaking of a contract is almost unheard of, and in the pig iron business there is a general observance of contracts, although concessions are sometimes made to consumers who have suffered during a falling market from adhering to their contracts. Why, then, should not contracts be respected, as much, at least, as in the pig iron business, by consumers of finished materials? We believe some progress has been made in the right direction in recent years by not making as many contracts as formerly for long periods. A short contract is not likely to cause as much trouble as one made for a long period. But that conditions have improved very little was shown during the past year whenever prices declined.

A courage of a high order will be necessary to bring about a revolution of present methods, but we believe that a manufacturing concern that would take a firm stand and insist that there be no revision of contracts, and no repudiation of contracts, and that the buyers and the sellers alike be compelled to adhere to all their agreements, would soon have such a splendid reputation that any temporary loss that it might sustain would be recouped many fold and it would stand like a beacon light of honesty in the business world.

Pig Iron Production and Capacity

It may have caused surprise in some quarters to learn from THE IRON TRADE REVIEW's annual summary of blast furnace erection and capacity, published last week, that the country's available blast furnace capacity at present is only between 33,000,000 and 34,000,000 tons per annum. It will be recalled that nearly two years ago, in February, 1910, a rate not very much below this was attained. Our blast furnace report showed an output of the coke and anthracite furnaces in February, 1910, of 86,769 tons a day, which is equivalent to about 31,600,000 tons annually, or, with an allowance for the charcoal furnaces, of practically 32,000,000 tons. It might be surmised from this fact that, with furnace building in progress all the time, a capacity much in excess of that rate had now been reached. This, however, is not the case. The rate early in 1910 was a forced rate. There had been much idleness in 1908 and the fore part of 1909, and the furnaces had been put in particularly good shape, so that for a time they were able to make more iron than they could in a long campaign. Occassionally cases occur of a furnace being relined in very short time, and those cases are usually much spoken of; the average time is much longer. To assume that on an average every furnace loses, through relining and other unavoidable intermissions, 60 days in every three years, would be to make a very small allowance, yet that would be 20 days a year or one-eighteenth of the total time. An allowance of 5 per cent, then would be extremely low, so that if the furnaces running at a given date are making 31,500,000 tons of pig iron a year, they will not average, year in and year out, more than about 30,000,000 tons.

Many of the furnaces which were in course of erection, or were definitely projected, at the beginning of 1910 are not yet making pig iron. Some of them are completed, and make up part of the 33,400,000 tons at which our review estimated the present capacity, but others are still incomplete, and the furnaces still in course of construction have a capacity of about 1,385,000 tons, so that eventually we shall have a capacity but little under 35,000,000 tons.

It is interesting to observe the character and position of the idle furnaces. Of the completed and available furnaces, three have never been blown in, and they may be dismissed at once, bringing the capacity of furnaces which are operating or have operated to a trifle less than 33,000,000 tons.

Production in the past three months has aver-

aged about 25,000,000 tons, so that approximately 75 per cent of the capacity has been in blast. What of the other 25 per cent? Perhaps two-thirds of this capacity belonged to steel works, and was idle simply because the steel works did not have business enough to justify its operation. It was not, in the main, a question of whether iron could be made at a profit. Leading steel interests had furnaces idle which could make iron with as great advantage as other furnaces in operation. Nevertheless, the fact must be observed that a portion, although a relatively small proportion, of the steel works furnaces were not economically fit at the prices ruling. Some of these furnaces are old, and detached from the steel works controlling them, and it is economy to operate them only when prices are on a fairly profitable basis. This fits with commercial conditions, because prices are certain to be fairly profitable when demand is sufficient to require the operation of such old stacks.

Another group of idle furnaces has comprised those which were owned by merchant interests well positioned to produce pig iron against any market conditions, merchant interests which operate two, three or four furnaces in a group and aim simply to meet the market, making sure of obtaining their full share of the business going. The idleness of such furnaces is no indication that they could not make iron profitably at the prices ruling.

A third group of idle furnaces comprises furnaces whose production costs are such that they have not been able to make pig iron at prices ruling without suffering an actual loss. By one kind of reasoning, these furnaces might be put out of the reckoning entirely and held not to be part of our productive capacity, for if they are to be included, why not include furnaces which would lose money when pig iron is selling at $16, or $20, a ton? The objection answers itself. One cannot include furnaces which could make pig iron only at unreasonably high prices, and one cannot be moving the line all the time, so as to include in the estimate of total capacity more and more furnaces as the market moves upward. Such estimates would be quite useless. The standard must be the furnace which can make little profit when prices are at a reasonable level, judged by the average over a period of years in the past.

Thus we find that while 25 per cent of the blast furnace capacity has been idle, a considerable portion of the idle capacity has been such as would not become productive except at advanced prices. Since one wishes to compare the active with the possible capacity in order to canvass the prospects of a market advance, the conclusion is that of the blast furnace capacity which can operate at the present market level, there is really not a very large proportion idle.

"Turning With Horror" Not Enough

Since the McNamaras confessed to dynamiting and murder, many labor leaders and other members of unions including editors of various official organs have done a great deal of talking and some have written editorials denouncing the McNamaras and their crimes. For example, the *Machinists' Monthly Journal* for January tries to justify the action of the unions in contributing toward the defense of the McNamaras, but says that the same action would be taken again, if similar conditions existed. Then the editor proceeds to say that as soon as the organization workers learned that these men they were defending were self-confessed miscreants, guilty of the most abominable crimes, the union men "turned in horror" against them, having no sympathy with such "damnable methods to redress grievances as those employed by these misled wretches who had been so whole heartedly defended."

Denouncing of crimes is all right so far as it goes, but acts must follow talk. The real test is what have the labor leaders actually done, and particularly what have the officers of the unions in California done to assist the government? Oscar Lawler, special government prosecutor, at Los Angeles, states that, notwithstanding emphatic protestations on the part of so-called labor leaders of opposition to the dynamiting practice indulged in by the McNamaras, not one of them has lifted a hand to aid the officers of the law in their efforts to discover the truth. On the contrary, there has been exhibited, he says, decided disposition to impede such efforts.

Turning in horror is not enough. Every labor leader and union member who can, in any way render practical assistance to the prosecution of crime, anywhere, must do so or the country will regard with suspicion the protestations of lack of sympathy for the outrages that have been committed by many members of unions.

The Passing and Recall of the Puddler

Curious interest attaches to a paragraph in the annual review of the British iron and steel trade made by our Birmingham, Eng., staff correspondent and published in The Iron Trade Review last week. That paragraph records the surprising demand for puddled iron that is springing up in Great Britain. He ascribes this demand to the specification by railroads for wrought iron in car building, their engineers having declared in its favor in preference to steel, under certain conditions.

Puddling is as nearly a lost art in England as in the United States. Steel-making has displaced it. So that in order to supply the unexpected demand for wrought iron, puddling furnaces that have been abandoned for years are being rejuvenated; every available effort is being made to catch up with the demand which is so insistent that fancy prices are being paid for immediate delivery of wrought iron bars. The mills may be rebuilt, etc., but what about the men to man them? Puddling has been almost abandoned as a pursuit for a livelihood, for it has afforded merely a bare living for the workmen for a dozen years because of the instability of demand for wrought iron.

The swinging backward of the pendulum in the case of British wrought iron is curiously regarded in America today. For the same thing may happen here. But where are the puddlers to man the few old mills throughout the country that might be utilized to supply a sudden large demand? The old puddle mill hands have died off, and as long ago as a dozen or even a score of years the young men who came forward to take their places were advised to seek some other occupation. And they followed that bit of advice until today difficulty is had in finding competent puddlers in large enough numbers to man one big middle western mill.

Graphic Review of Metal Markets for Year 1911

Reason for Strength of Copper — Pig Tin and Lead Prices Carefully Analyzed

By J Chalmers Warwick

The statistical position of copper metal at the end of 1911, reflects a higher degree of co-operation among producers than has prevailed, possibly, during any calendar year in the history of the industry. Visible surplus stocks have been reduced to smaller totals in the past, but almost invariably concurrent trade opinion was suspicious of trickery, and subsequent developments generally justified the lack of confidence, by disclosing large stocks of copper in concealment. There is little reason, however, to take such a view of the developments of 1911. Every indication warrants belief that practically every pound of copper produced during the year was consumed and an appreciable part of the world's surplus stock at the beginning of the year, besides. While the expression "high degree of co-operation" is used in it's broadest sense, it is particularly desired to emphasize the fact that production was reasonably regulated to meet the demands of consumption and that the important effect was to stabilize the market.

Domestic consumers of copper did not show a strong hand in the market in the first six months of the year. This had a depressing influence on prices and at the end of May, the metal sold under the lowest prices of 1910. Lake was offered below 12.25c, and electrolytic under 12.00c. Continuous heavy buying by foreign consumers eventuated in off-setting that factor, however, and during the last half of the year there was gradual improvement in prices. Turning the third quarter, general improvement in the domestic business outlook inspired greater confidence among home consumers, and more active buying of the metal followed. Prices advanced rapidly, both in this country and abroad, until established at the highest levels reached since 1908, late in December, and some important producers were entirely sold up as far ahead as February, 1912. Electrolytic was held at 14.25c and lake at 14.37½c by the largest sellers. In the London market standard copper sold at £61 to £63. The accompanying tabulation of monthly high, low and closing prices, will be found by comparison with the producers' statistics, clearly to reflect a distinct influence on prices, by that index to trade conditions.

The combined shipments of copper for domestic and foreign consumption probably did not equal the total of 1910, but the difference will be insignificant, if any be shown, when the final figures are compiled for this year. Estimating December, the deliveries will approximate 1,460,000,000 pounds compared with 1,471,858,036 pounds reported by the Copper Producers' Association in 1910. Europe took approximately 750,600,000 pounds and eclipsed the previous high record of last year's purchases by about 25,000,000 pounds. Domestic deliveries were at a slightly lower rate, and account for the decline in the aggregate of shipments from refineries. It is probably true, however, that invisible stocks here were freely worked on, and that actual consumption was larger than the figures indicate.

Estimating December production at 120,000,000 pounds, the total for the year is 1,429,000,000 pounds, which is about 20,000,000 pounds less than was produced during 1910. Domestic stocks rose from 122,030,195 pounds Jan. 1, to 165,555,908 pounds June 1, and declined successively throughout the remainder of the year, excepting October, to under 100,000,000 pounds at the end of December. The accompanying table shows monthly summaries of the Copper Producers' Association, from Jan. 1, to Dec. 1.

European consumption made a new mark in activity, and reduced the burdensome surplus that existed at the opening of the year's trade, to a more comfortable working balance. From 254,139,200 pounds in March, stocks declined to about 160,000,000 pounds by Dec. 15, and trade reports from foreign manufacturers, at the end of the year, were extremely optimistic regarding the outlook for a prolonged continuation of heavy consumption.

The world's visible supply of copper, as shown in the accompanying table, declined about 100,000,000 pounds, (December estimated) during the past year, and does not represent more than two months' normal consumptive demand.

Tin Market

The general character of the 1911 pig tin situation was much the same as that of the preceding year. All important sources of supply yielded a reduced amount of the metal—excepting the Banca output—and consumption, although slightly less than in 1910, exceeded the production. Manipulation by the foreign bull syndicate was carried to even greater extremes than it was last year, and at the close of December its grip on the market appeared to be as strong, if not stronger, than at any time since it began operating about two years ago.

At the beginning of 1911, the total visible supply of tin was 17,194 tons and, due to the large consumption in prospect, both in Europe, and the United States, it was generally expected that the surplus would be reduced further unless production in the meantime increased. The latter did not seem improbable, due to the high prices prevailing for the metal at the time, £174 17s 6d in London, and 38.12½c in New York. Succeeding statistical developments, during the first half of the year dissipated all hope of relief from that source, however. Shipments from the Straits, and Australia sources of about 60 per cent of the world's tin supplies declined about 500 tons, compared with the corresponding period of 1910, and no appreciable increase occurred at any other originating point. The market price was run up or down, at will, by the syndicate during that period, and in June was imposed to the highest price ever recorded for the metal. Spot deliveries sold at £233 per ton in London, and at 50c per pound in New York. While it is true that the bear speculative element of the foreign market was the principle sufferer, from the June climax, serious hardship was inflicted upon many domestic consumers, and especially small ones, who were forced to pay prices that advanced here sympathetically with the gamblers' orgy in London. Immediately following the settlement

by the "short" interest abroad, prices declined rapidly to under £200, and fluctuated within a range of £10 during the following two and a half months. Late in September, serious political complications in Europe, precipated a further decline of about £25 in spot to £171 in London and 37.75c in New York. Considerable metal was bought by domestic consumers, following the decline which greatly relieved the situation here for a few weeks. The decline of over £60 from £233 June 13, to £171, Sept. 25, encouraged renewal "short" selling by the foreign bears, and as most of those sales were taken by agents of the syndicate, it was an easy matter again to "squeeze" the market up, when they matured. Favored by an early settlement of the Morroccan dispute, and a restoration of business confidence abroad, the market was worked back to around £190 by the end of October, and both domestic and foreign consumers by that time were again at the mercy of the bull clique. By the middle of December spot tin sold at £206 in London and 46.25c in New York. Domestic statistics at the end of November showed that 40,644 tons were imported during the 11 months, and that 40,600 tons were shipped to consuming points. While the domestic deliveries, as given above, are 1,150 tons less than for the corresponding period of 1910, there is little doubt that actual consumption was as large in 1911, as in the previous year. Due to the high prices, stocks at plants were reduced to the lowest point possible, and the invisible supply of tin in this country was practically wiped out. The same condition applies to the European situation, of which fact there is no better proof, than the high prices that were paid for the "off grade" brands of tin at the end of the year.

Spurred to action by the stigma of the numerous corners manipulated in Straits tin on the London metal exchange, the authorities adopted a resolution providing for a standard tin contract, which became effective Nov. 1, on futures, and will infoice the same rulings on spot sales beginning Feb. 1. The new form allows a seller to deliver Banca tin, and several other high grade brands, at the contract price, and also grades analyzing as low as 99.75 per cent at a fixed discount. A fair test of its influence in checking manipulation will not be possible until February, when deliveries under it's terms, begin to fall due.

The Pig Lead Market

Few changes occurred in the pig lead trade either as to price fluctuations, or general conditions, during the first half of 1911, and such as did take place were not of importance enough even to slightly dim the stamp of control by one interest, which has characterized the local situation for several years. The price extremes were 4.45c and 4.50c in New York, from Jan. 1, to June 30, and consumers bought carefully in view of the uncertain business conditions, and with little data of a statistical nature relating to supplies to guide them.

During July and August the market displayed considerable strength and the price advanced to 4.62½c in New York, among independent sellers, who became almost entirely sold out for prompt deliveries. The American Smelting & Refining Co., however, maintained its price at 4.50c, for shipments to this market, and the outside quotations which were more or less nominal, due to scarcity of supplies, soon sank to a general level of 4.50c. In October the largest seller took the lead in reducing prices, making successive cuts of 15 and 10 points within one week and established the general market for a few weeks at 4.25c in New York. With equal precipitancy two advances of 10 points each to 4.45c were announced Nov. 16 and 27, and the price was maintained at that figure up to the close of the year. Independent producers again held their prices above that of the leading interest within a margin of five points. In the absence of either announced or apparent reason, for the decline, or advance, the movements were generally accepted as purely manipulative by the trade.

The market closed at the end of the year practically unchanged from the opening price, and with a well defined feeling of optimism among consumers regarding the outlook for 1912.

Prices of Copper Products Advanced

Due to the increased cost of copper, prices have been advanced ½c per pound on the following copper products: Drawn copper rods, bars and strips; bare and insulated copper wire and cable; magnet wire: copper in rolls and copper anodes.

The West End Furnace Co. relighted its stack at Roanoke, Va., on Dec. 27.

BIDS FOR BATTLESHIPS

Opened at Washington on Jan. 4—Also Bids for Armor Plate.

Bids for battleships Nos. 36 and 37, the Nevada and Oklahoma, were opened at Washington, Jan. 4, under classes as indicated:

Class 1—Hull and machinery per department's plans.

Class 2—Hull and equipment per department's plans. (Bid 1.)

Machinery per bidder's design. (Bid 2.)

Fore River Ship Building & Dry Dock Co., Quincy, Mass.

Class 1: $5,980,000 (36 months). Speed 20.5 knots. (One vessel.) Class 2: Bid 1: $5,935,000 (36 months). Speed 20.5 knots. (One vessel.) Class 2: Bid 2: $5,955,000 (36 months). Speed 20.5 knots. (One vessel.)

New York Ship Building Co., Camden, N. J. Class 2, Bid 1: $5,926,000 (36 months). Speed 20.5 knots. (One vessel.) Class 2, Bid 2: $5,965,000 (36 months). Speed 20.5 knots. (One vessel.)

Newport News Ship Building & Dry Dock Co., Newport News, Va. Class 1, $6,450,000 (36 months). Speed 20.5 knots. (One vessel.) Class 1: $6,350,000, each provided they get both vessels.

The following is a synopsis of the bids for the armor to be furnished for the above battleships:

Bethlehem Steel Co., South Bethlehem, Pa.: Class "A" $420 per ton, not to exceed 13,104 tons. Class "A" $480 per ton, not to exceed 1,674 tons. Class "B" $470 per ton, not to exceed 455 tons. Class "C" $508 per ton, not to exceed 130 tons.

Carnegie Steel Co., Pittsburgh, Pa.: Class "A" $420 per ton, not to exceed 13,104 tons. Class "A" $480 per ton, not to exceed 1,674 tons. Class "B" $460 per ton, not to exceed 445 tons. Class "C" $508 per ton, not to exceed 130 tons.

Midvale Steel Co., Philadelphia, Pa.: Class "A" $420 per ton, not to exceed 13,104 tons. Class "A" $480 per ton, not to exceed 1,674 tons. Class "B' $470 per ton, not to exceed 445 tons. Class "C" $508 per ton, not to exceed 130 tons.

Delivery will begin Aug. 1, 1912, and continue at the rate of 500 tons per month thereafter.

Election of New England Foundrymen

Charles L. Newcomb, of the Dean Steam Pump Co., Holyoke, Mass., was elected president of the New England Foundrymen's Association for the ensuing year. The other officers chosen are: Vice president, Robert C. Bird, Broadway Iron Foundry; treasurer, George H. Lincoln, G. H. Lincoln & Co., Boston, Mass.; secretary, Fred F. Stockwell, Barbour, Stockwell & Co., Cambridge, Mass.; executive committee—Charles L. Nutter, Old Colony Foundry Co.; Charles A. Reed, Hickman, Williams & Co.; J. C. Hosford, Magee Furnace Co.; D. K. Bartlett, Builders' Iron Foundry, and A. L. Clark, American Brake Shoe & Foundry Co. The formal election of officers was held at the meeting at the Exchange Club, Boston, Mass., Jan. 10. Following the business meeting, a dinner was served and Mr. Newcomb officiated as toastmaster. The committee in charge of the dinner consisted of Henry A. Carpenter, Charles A. Reed and Charles L. Nutter.

INSPECTION TOUR

Made by President Farrell—The Steel Corporation and Wages.

President James A. Farrell and other officials of the United States Steel Corporation, on Friday and Saturday inspected the various plants of the Carnegie Steel Co. and other subsidiary companies and attended the annual banquet of the operating heads of the Carnegie Steel Co. at the Duquesne Club, Pittsburgh, Saturday evening. Charles M. Schwab, president of the Bethlehem Steel Co. and former president of the United States Steel Corporation, who inaugurated the annual dinners a number of years ago, also attended the banquet and delivered a formal address.

President Farrell, accompanied by several other officials, reached Cleveland on Wednesday to attend the annual dinner of the officials and captains of the Pittsburgh Steamship Co., upon which occasion he made an informal talk to the men. While in Cleveland he inspected the plants of the American Steel & Wire Co., and also went to Lorain to look over the National Tube Co.'s works. On Friday, he inspected the Ohio Works, at Youngstown, reaching Pittsburgh on Friday evening. Saturday was devoted to an inspection of some of the plants in the Pittsburgh district.

Col. H. P. Bope, vice president of the Carnegie Steel Co., presided as toastmaster. Dr. J. S. Unger, head of the research department of the United States Steel Corporation, for many years identified with the Carnegie teel Co., delivered an address on "The Value of Research". J. E. Woods, of Cincinnati, spoke on "The Value of Education". President A. C. Dinkey, of the Carnegie Steel Co., responded to the subject of "The Value of Workingmen". The final address on the list was by the toastmaster, who spoke on "Community and the Factory". Following the formal addresses, President Farrell and Charles M. Schwab delivered informal addresses. Following, came the address of former Vice President James Gayley and of Judge James H. Reed, chairman of the board of the Carnegie Steel Co.

While in Pittsburgh, Saturday, President Farrell made the following statement:

"Business conditions continue promising and we are looking forward to more active operations in the steel industry. We have passed through a year of remarkable experience in many respects, but in coping with and solving the vast and difficult problems of operation, the management of our plants in the Pittsburgh district has brought to bear the experience of years and a knowledge of steel manufacturing which compares most favorably with that of any similar group of steel manufacturers in the world.

"The exports of steel products by the United States Steel Corporation during 1911 were approximately 2,000,000 tons, of which 1,500,000 tons were produced in the Pittsburgh district.

"In my previous visit to Pittsburgh, I stated and now reiterate, that our Pittsburgh plants are a great industry, in which the Corporation and its subsidiary companies take a justifiable pride, and the fact that the increase in the capacity of the Carnegie Steel Co. alone during the past ten years is equal to the total capacity of the great Gary works is sufficient proof of the confidence that has been maintained in the fact that Pittsburgh continues an important iron and steel producing district.

"The existence of the United States Steel Corporation we believe to be largly accountable for the fact that wages in the industry have been generally maintained through the period of depression from which we are gradually emerging."

President Schwab spent Friday with old acquaintances in Braddock and Homestead. Replying to a question concerning the proposed amendments to the steel tariff, Mr. Schwab is quoted as saying:

"I do not think that the proposed amendments to the schedule will, after calm and thoughtful deliberation, be radical. There may be some reductions along special lines of steel, where they can be made with no harm being done, but the law makers of the country must realize that, after all, the chief and great cost of all steel is not in the material, but in the labor. To reduce the tariff means a cut in labor and this will hardly be made against our own workmen."

Will Extend Steel Plant

The Steel Co. of Canada will proceed immediately with its plans as previously announced, for extensive additions to its Hamilton plant, including two new open-hearth furnaces, each of 50 tons capacity, a blooming mill, a continuous billet mill and a combination bar and rod mill. The contract for the erection of the buildings has been awarded to the Hamilton Bridge Co., which undertakes to have them completed by April 1.

BOUNTIES URGED

By Canadian Manufacturers—Other News From the Dominion.

Toronto, Can., Jan. 8.—A representative deputation of iron and steel manufacturers, including President J. H. Plummer, of the Dominion Steel Corporation; Thomas J. Drummond and George E. Drummond, of the Algoma Steel Works, and Robert Hobson, of the Steel Co. of Canada, Hamilton, has again waited upon the members of the Canadian government at Ottawa to urge a renewal of the iron and steel bounties. They presented a mass of statistics intended to show how the iron and steel industries had been stimulated by liberal bounties. The close of a lengthy conference found the government still non-committal. In view of the declared policy of speedily appointing a tariff commission to which all proposed fiscal changes will be referred, it is not considered probable that any action will be taken in the meantime.

At the shoe machinery investigation at Montreal on Jan. 4, George A. Fortin, of the Scout Shoe Co., Ltd., said that his company found it to its advantage to buy machines from independent companies. By buying outright the machines paid for themselves within four years and their life was approximately 20 years, while by doing business with the United Shoe Machinery Co. his company had to continue the payment of leases and royalties and never owned the machines. If the firm he had been getting his machines from were forced out of business, he would be in a difficult position. A. Brunet, manager of the Eagle Shoe Mfg. Co. and president of the Du Plessis Shoe Mfg. Co., testified that the latter company had been compelled to leave Canada on account of the actions of the United Shoe Machinery Co.

The department of marine and Fisheries, Ottawa, calls for tenders to be received up to Feb. 26 for one or two steel single screw bucket dredges, a steel single screw hopper barge, one set of compound steam engines to develop 450 indicated horsepower, and 50 steel rock-digging buckets, cast steel links and manganese bucket pins, all to be delivered at Sorel, Que.

The citizens of Fort William, Ont., have adopted a bylaw guaranteeing the bond issue of the Universal Motor Co. to the amount of $100,000, the company agreeing to erect a plant for the manufacture of motors and machinery and have it in operation by September next, employing 300 men.

VALUE OF COKE OUTPUT

Greatly Decreased Last Year—Need of Regulation.

The weekly *Connellsville Courier,* in its issue of Jan. 4, in reviewing the Connellsville coke market during the year 1911, says in part:

The Connellsville coke trade of 1911 was in keeping with the iron and steel trade, and was in precise figures as compared with the previous year, 13 per cent less as to production but 28 per cent less as to the value of the product. Compared with the best year of the coke business, the volume was within 19 per cent but the value was short 49 per cent. Production last year did not greatly vary. It stood around 4,000,000 tons quarterly, being slightly over that during the first and last quarters and slightly under it during the middle quarters of the year. The downward movement, begun in 1910, continued until last summer, since which time there has been an upward movement, not very pronounced but quite visible to the naked eye of the trade. The net results of the year are 16,000,000 tons of coke shipped out of the region, which, at the estimated average price of merchant coke, would mean a net value on the output of $28,000,000. Compared with previous years this is a ruinous loss in values. In 1906 the output was a trifle under 20,000,000 tons, but it represented a value of $55,000,000, and the succeeding year witnessed the output of 19,000,000 tons, valued at over $55,000,000. The output of 1911, therefore, while almost as great as that of the best years in the Connellsville coke business, was sold practically at half price. The situation calls for serious thought and quiet endeavor.

The following tabulated statement gives a comprehensive view of the coke trade for the past 32 years, or during the whole period of its importance as an industry. It shows the aggregate number of ovens in commission at the close of each year, the annual output, the average price and the estimated gross value, as compiled from 1889 and published annually by The Courier:

Year..	Total ovens.	Tons shipped.	Av. price.	Gross revenue.
1880.....	7,211	2,205,946	$1.79	$ 3,948,643
1881.....	8,208	2 639,002	1.63	4,301,573
1882.....	9.283	3,043,394	1.47	4,473,889
1883.....10,176		3,552,402	1.14	4,049,738
1884.....10,543		3,192,105	1.13	3,607 378
1885.....10,471		3,096,012	1.22	3,777,134
1886.....10,952		4,180,521	1.36	5,701,086
1887.....11,923		4 146,989	1.79	7,437,669
1888.....13,975		4,955,553	1.19	5,884,081
1889.....14.458		5,930,428	1.34	7,974,663
1890.....16,020		6,464,156	1.94	12,537 370
1891.....17,204		4,760,665	1.87	8,903,454
1892.....17,256		6,329,452	1.83	11,598,407
1893.....17,513		4 805,623	1.49	7,141,031
1894.....17,834		5,454,451	1.00	5,454,451
1895.....17,947		8,244,438	1.23	10,140,658
1896.....18,351		5,411,602	1.90	10,282 043
1897.....18,628		6,915,052	1.65	11,409,835
1898.....18,643		8,460,112	1.55	13,113,179
1899.....19,689		10 129,764	2.00	20,259,528
1900.....20,954		10,166,234	2.70	27,448,832
1901.....21,575		12,609,949	1.95	24,589,400
1902.....26,329		14,138,740	2.37	33,508 714
1903.....28,092		13,345,230	3.00	40,035,906
1904.....29,119		12,427,468	1.75	21,748,069
1905.....30,842		17 896,526	2.26	40,446,149
1906.....34,059		19,999,326	2.75	54,998,146
1907.....35,697		19,029,058	2.90	55,184,268
1908.....37,842		10,700,022	1.80	19,260.040
1909.....39,158		17,785,832	2.00	35,571,664
1910.....39,137		18,689,722	2.10	39,248,416
1911.....38,904		16 334,174	1.72	28,094,780

The following tabulation shows the production of the Connellsville and Lower Connellsville regions by quarters. It will be noticed that the new region is producing almost as much coke as the old. In due time it will doubtless produce more, especially when the Greene county annex is in active operation:

Quarters.	Conn.	L. Conn.	Total.
1st 2,324,508		1,918 066	4,242,574
2nd 2,120,943		1,663,406	3,784,349
3rd 2,236,914		1,727,004	3,963,918
4th 2,301.309		1,813,756	4,115,065
Total 8,983,674		7,122,232	16,105,906

The furnace operations in the coke regions continue to lead in the volume of their production, but the merchant interests are a close second. The figures for the past year are expressed in the following compilation:

Quar.	Mer.	Fur.	Total.
1st 1,718,437		2,524,137	4,242,574
2nd 1,555,475		2,228 874	3,784,349
3rd 1,668,384		2,295,534	3,963,918
4th 1,804,853		2,310,212	4,115,065
Total 6,747.149		9,358,757	16,105,906

These figures indicate that the merchant coke trade of the Connellsville region is holding its own fairly well under the adverse conditions regarding demand and the discriminatory freight rates at present in force against them.

The shipments of Connellsville coke from each region with the totals from both by months in tons are shown herewith:

Quarters.	Conn.	L. Conn.	Total.
1st 2,461,189		1,713,031	4,174,220
2nd 2,362,501		1,693,581	4.056,082
3rd 2,376,611		1,581,428	3 958,039
4th 2,464,844		1,680,989	4,145,833
Total 9,665,145		6,669,029	16,334,174

The shipments are obtained from official sources and represent actual tonnages as returned from the scale reports. Our statements as to production are necessarily limited, but their accuracy is strikingly illustrated in the figures at hand. At the beginning of the year they indicated that there was something like 236,000 tons of stock on the yards, production for 1910 being that much in excess of shipments. This year shipments are 228,000 tons in excess of production, and it is well known that the yards have been thoroughly cleaned up. This house-cleaning of the coke region has been a most excellent thing from various viewpoints, but perhaps its most wholesome effect has been to add material value to the coke output. The Connellsville coke region is badly in need of proper regulation to keep it out of the industrial poor house.

Furnaces Blown Out

The Thomas Iron Co. has blown out its Hellerton, Pa., furnace and is preparing to put in idleness one of its Alburtis stacks. When this is done, the company will have but one furnace blowing at Hokendauqua out of its total capacity of nine furnaces.

TOOK OVER WORKS

Of Toronto Thresher Concern.—Output of Nova Scotia Steel.

Toronto, Can., Jan. 8. — The M. Rumely Co., of Laporte, Ind., agricultural implement manufacturer, has acquired control of the American-Abell Engine & Thresher Co., Ltd., of Toronto, having purchased the stock and assets for about $2,000,000. Half the stock of the American-Abell was held by the Advance Co., of Battle Creek, Mich., which was absorbed by the Rumely company about six weeks ago, and negotiations were then begun for the purchase of the remaining half-interest held by F. E. Keniston, of Minnesota, the deal being concluded last night. The American-Abell has an authorized capital of $1,000,000, of which $500,000 common stock and $200,000 preferred stock has been issued. The new officers are President J. J. Rumely; treasurer, E. A. Rumely, directors, S. Stratton and B. C. Bush. T. A. Drummond will continue as manager and T. A. Rowan as secretary. Under the new management the output will be doubled, employing 450 men instead of 200 as at present. In addition to the present manufacture of steam traction and threshing machines a grain grader will be built and also the line of heavy oil engines now made in the company's Indiana plants.

R. B. Coulson, formerly selling agent for the Dominion Wire Mfg. Co., has been appointed sales agent for the wire products department of the Dominion Steel Corporation, with headquarters in Montreal.

The output of the Nova Scotia Steel & Coal Co., for 1911, as compared with 1910, is as follows in tons:

	1910.	1911.
Coke made	90,360	97,971
Pig iron	66,000	84,166
Steel ingots	31,521	84,503
Billets cogged	59,000	78,389
Shipments of finished materials, steel bars, ingots, plates and forgings.	60,200	69,800

Midland Furnace Record

No. 2 furnace of the Pittsburgh Crucible Steel Co., at Midland, Pa., Jas. Duane Jr., superintendent, made the largest daily, weekly and monthly production in the history of the plant during December, 1911. The monthly production was 14,901 tons; largest daily production was Christmas day when she made 604 tons, all standard basic iron. The furnace is now on her sixth year on one lining.

The Norton Iron Works, Ashland, Ky., blew out its stack, Dec. 20.

WAGE ADJUSTMENT

Still Pending in San Francisco—Metal Trades Nominations.

The following names have been submitted by the nominating committee of the California Metal Trades Association: President, Sam J. Eva, United Engineering Works; first vice president, Constant Meese, Meese & Godfreid Machinery Co.; second vice president, John Hedley, Western Foundry; general executive committee—G. A. DuBois, Byron Jackson Iron Works; C. H. Evans, C. H. Evans & Co.; O. H. Fischer, Union Gas Engine Co.; S. S. Hennick, Vulcan Iron Works; Andrew L. Kerr, Steiger & Kerr Stove Works; John A. McGregor, Union Iron Works; P. H. Reardon, Compressed Air Machinery Co., and John T. Scott, Moore & Scott Iron Works.

The annual meeting and election of the association will take place about the middle of January at the rooms of the organization, Hooker & Lent building, in San Francisco.

It is stated at the headquarters of the organization that no report has yet been received from the arbitration board which has under advisement the controversy on the equalization of hours in San Francisco plants with those of the other Pacific coast cities. The association and the Iron Trades Council are endeavoring to have the matter adjusted according to their respective views. The employers declare that as nine hours is the working day in other cities along the coast, according to the agreement entered into a year ago, the same schedule should be adopted in San Francisco. The Iron Trades Council has refused to acknowledge that the eight-hour rules do not prevail in other parts of the west and as a result the conciliation board was called in to adjust the matter. It is expected that a decision will be reached about the middle of February.

Metal Production by Western States

According to a report just issued by the United States geological survey, the western states are credited with 847,536,107 pounds of the 1,088,237,432 pounds of copper won from mines in this country during 1910. The remainder was produced chiefly in Michigan, but also in considerable part in Tennessee. Of the lead output of mines in the United States during 1910, the western states produced 447,922,476 pounds in 1910, the remainder of the total production of 790,573,326 pounds coming chiefly from Missouri. Of the total zinc production (figured as spelter) of 653,434,034 pounds, the western states supplied 261,270,599 pounds; the central states, mainly Missouri, 357,568,000 pounds; and the eastern states, mainly New Jersey, 140,875,886 pounds. The western states referred to in the report include the territories and are as follows: Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Texas, Utah, Washington and Wyoming.

Heavy Steel Tonnage in New Subway Bids

Bids have been asked from the general contractors for the construction of sections 2 and 3 of the Broadway-Lexington avenue subway extensions, New York. These sections are in the downtown district and the type of construction is heavier than at other parts of the route, necessitating larger steel requirements. For Section 2, the estimated tonnage of structural steel and steel bars required is about 11,750 tons, and for Section 3, about 5,000 tons. The board of estimate has decided to postpone indefinitely the award of Section 5, upon which the Metropolitan Contracting Co. is the low bidder. About 2,000 tons of steel are involved.

Retires from Steel Foundries

Judge E. H. Gary, chairman of the United States Steel Corporation, has retired as a director of the American Steel Foundries, and has been succeeded by F. E. Patterson, secretary and treasurer of the company. Recently Judge Gary also resigned as chairman of the Allis-Chalmers Co. It is stated that Judge Gary has retired from active participation in these companies because he has not been able to give them the proper amount of attention.

Canadian Coke Output.—The production of coke in Canada during 1910, according to a report by the Canadian department of mines, was 901,269 tons, produced from 1,373,793 tons of coal. Of this, 875,310 tons were produced from domestic coal and 25,959 tons from imported coal. During the same year, the imports of coke were 737,088 tons and the exports 57,971 tons. The coke statistics included in the report deal exclusively with oven coke and do not include the coke produced in connection with the manufacture of gas.

Want Rates Lowered

Valley Manufacturers File Complaints With Interstate Commerce Commission.

Complaints against the rates charged by certain railroads were filed with the Interstate commerce commission, at Washington, on Jan. 4, by iron and steel manufacturers which operate plants in the Mahoning and Shenango valley district. Two of these complaints, on the freight rate on bituminous coal, 70c, from the Pittsburgh district and on the rate on coke, $1.35, from the Connellsville district, to the Youngstown district, were lodged against the Pittsburgh & Lake Erie railroad. The third concerned the rate on ore, 56c, from Ashtabula Harbor to the Youngstown district and was against the Lake Shore & Michigan Southern railroad. The railroads have been given 30 days to bring in answers to the complaints. When the answers are filed a date for the hearing will be fixed. The complainants are: The Youngstown Sheet & Tube Co., the Deforest Sheet & Tin Plate Co., the Republic Iron & Steel Co., the Sharon Steel Hoop Co., Valley Mould & Iron Co., Sharpsville Furnace Co., Girard Iron Co., Brier Hill Iron & Coal Co., Youngstown Steel Co., Struthers Furnace Co., Ohio Iron & Steel Co., Andrews & Hitchcock Iron Co., Empire Steel & Iron Co., Thomas Steel Co., Shenango Furnace Co., Youngstown Iron & Steel Co. and the Stewart Iron Co., Ltd.

Shipments of Coal and Coke

The following shows the coal and coke shipments originating along the lines of the Pennsylvania railroad east of Pittsburgh and Erie during the month of November, 1911, and the 11 months ending Nov. 30: Anthracite coal, 1,161,287 tons, a decrease of 86,102 tons; bituminous coal, 3,886,364 tons, an increase of 251,930 tons; coke, 913,487 tons an increase of 47,902 tons; total 5,961,138, an increase of 213,730 tons.

For the 11 months ending Nov. 30: Anthracite coal, 10,742,344 tons, an increase of 404,399 tons; bituminous coal, 38,437,959 tons, an increase of 752,790 tons; coke, 9,728,136 tons, a decrease of 2,296,551; total, 58,908,439 tons, a decrease of 1,139,362 tons.

The Princess Furnace Co. is planning to relight its stack about Feb. 1. The furnace is being relined.

CANADA DEPENDENT

On Imported Raw Materials For Production of Iron and Steel.

The Canadian iron and steel industry, according to the report of John McLeish, chief of the division of mineral resources and statistics, department of mines, Canada, has had a fairly steady and continuous development in recent years. In 1908, some ill effects were experienced owing to the serious depression in the United States. The production of 1909, however, greatly exceeded that of 1907, while the year 1910 also showed a substantial increase over 1909. The chief feature of interest in the present trend of the industry, however, is the great extent to which it is dependent on imported raw materials. About 11 per cent only of the iron ore used at Canadian blast furnaces during 1910 was of domestic origin; of the coke consumed, 49 per cent was either imported or produced from imported coal, and 18 per cent of the limestone used for fluxing purposes was from outside sources. Furthermore, the rate of production of iron ore has shown practically no increase during the past 10 years, while the production of pig iron during the same period has increased nearly eight fold.

Of the 800,797 net tons of pig iron produced in 1910, 783,633 net tons were made in coke furnaces and 17,164 with charcoal. The total production during that year was divided as follows: Iron for steel-making purposes, 644,892 net tons; foundry iron, 138,741 tons. In addition, some ferrosilicon, not included in the above total, was produced in four electric furnaces at Welland, Ont. Canada's completed blast furnaces at the close of 1910 numbered 17, with two more under construction. Of the 17, 11 were in blast and six idle on Dec. 31, 1910.

The assistance granted by the government to the iron and steel industry in Canada, in the form of bounties, ceased on Dec. 31, 1910, with the exception of the bounty on steel rods which was extended to June 30, 1911. The total amount of bounties paid from 1895 to the end of 1910 was $16,485,078.

The imports of iron and steel semi-finished and finished materials into Canada during the year ending June 30, 1910, were valued at $19,673,740, compared with $12,154,770 for the year ending June 30, 1909. The values of hardware, machinery, safes, etc., into Canada from the United States during the same periods were $47,827,368 and $31,406,732, respectively. Canada exported 35,070 net tons of iron ore into the United States during 1910, compared with 3,400 net tons in 1909.

Comparative statistics indicating the status of the industry in Canada in 1910 are set forth in the accompanying table.

Canadian Iron and Steel Statistics. Net Tons.

	1909.	1910.
Ore from Canadian mines	268,043	259,418
Canadian ore used by blast furnaces	257,502	171,191
Imported ore used by blast furnaces	1,235,000	1,377,035
Pig iron produced	757,162	800,797
Pig iron exported	5,063	9,763
Pig iron imported	148,338	243,859
Pig iron consumption (calculated)	900,437	1,034,893
Pig iron used by steel works stacks		690,913
Steel ingots and castings produced	754,719	822,284
Steel rails produced	377,642	399,762
Canadian coke used in blast furnaces	412,016	491,281
Imported coke used in blast furnaces	507,255	476,838
Iron and steel imported	565,740	979,939
Value of pig iron produced	$ 9,581,864	$11,245,622
Value of iron and steel goods imported	40,393 431	59,952,197
Value of iron and steel goods exported	7,172,413	7,895,489

Receivership Terminated

The Pittsburgh Lamp, Brass & Glass Co., Pittsburgh, has been reorganized, and the receivership practically terminated. The holders of the $300,000 first and $500,000 second mortgage bonds have agreed to an extension for five years without any other payment than interest. Holders of the $750,000 common and $750,000 preferred stocks have loaned the company enough money to take care of the indebtedness for four years and to provide adequate working capital. The banks holding loans aggregating about $490,000 have agreed to an extension for three years.

The Christo Mfg. Co., Chicago, has changed its name to the Christo Draft Arm Co., increased its capital stock from $2,500 to $100,000 and the number of its directors from three to four.

CUYUNA RANGE

Expected to Ship 3,000,000 Tons Yearly in a Short Time.

Commenting upon an interview with him, which appeared in *The Daily Iron Trade Review* some days ago, George H. Crosby, of Duluth, writes as follows:

"There are no 40-acre tracts on the Cuyuna range, that I know of, which have shown up more than 7,000,000 tons of mercantile iron ore. Most of the forties do not carry more than 3,000,000 to 4,000,000 tons. The iron contents average from 55 per cent to 56 per cent and there is very little of the ore that is Bessemer. There is no ore on the range that I know of that runs as low as 0.07. A great proportion of it is non-Bessemer. The structure of the ore is coarse-grained and lumpy, very favorable for furnace practice.

"It is true that there are five shafts being sunk on the range at the present time and a number of other shafts in prospect for the coming year.

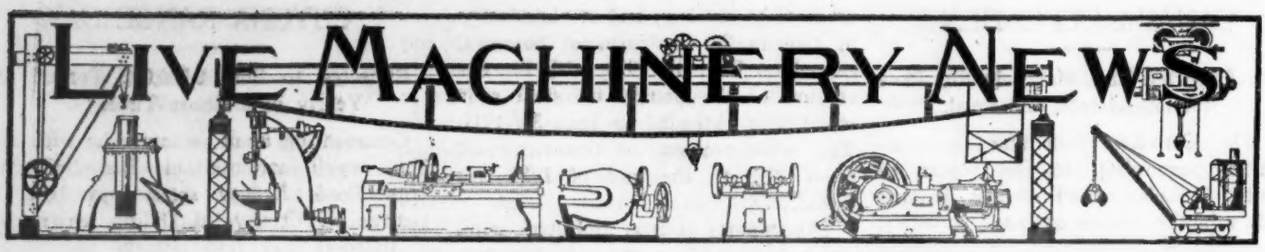
"The only mine which has shipped up to this time is the Kennedy, and it shipped 132,000 tons of ore this year. The other mines which are to ship in 1912 are the Thompson, owned by the Inland Steel Co., the Armour No. 1 and No. 2, owned by the Rogers-Brown Ore Co., and the Iroquois Iron Co.

"I do expect the range to ship 3,000,000 tons per annum within a very short space of time, say within the next four or five years."

Higgins Goes to Otis Steel Co.

Harry E. Higgins, formerly general manager of the Cleveland Steel Co., Cleveland, has become connected with the Otis Steel Co., and it is expected that he will be an officer and director of the new Otis Steel Co., soon to be organized under the laws of Ohio, as successor to the Otis Steel Co., Ltd., an English corporation. Mr. Higgins is regarded as one of the ablest men in steel plate manufacturing in this country.

Eng. Officers Elected.—The following officers have been elected by the structural section of the Engineers' Society of Western Pennsylvania: Chairman, T. J. Wilkerson; vice chairman, Edward Godfrey; directors, Henry Gulick Jr.; Kenneth Seaver and William A. Weldin. Mr. Wilkerson succeeds R. B. Woodworth as chairman.



The most important event to mark the beginning of the year in the New York machinery market was the appearance of the list which the Delaware & Hudson railroad had had in the course of preparation for some time. This list includes 115 machine tools, which involve a total estimated value of $225,000. It is also expected that action on their machinery requirements will soon be taken by other eastern railroads. New York dealers report that business has improved considerably since the first of the year. In Cleveland, small orders for machine tools continue to be placed, but general conditions have not changed much. There is small reason to believe that machinery sales will total much more than 60 per cent of normal for several months to come. In Pittsburgh, the outlook is very favorable; in addition to the proposed new open-hearth steel plants, blast furnaces, etc., previously outlined, preliminary estimates are being taken on a fair amount of new construction work, which will entail the purchase of a large amount of machinery and tools. The Westinghouse plants in the Pittsburgh district are all operating on very satisfactory schedules.

New Construction

The Buffalo Bolt Co., Buffalo, is erecting an addition to its warehouse.

The Pullman Co., Richmond, Cal., will soon commence the erection of an addition to its car repair shops.

It is reported that the Oil City Machinery Co., Vivian, La., will establish a foundry in connection with its machine shops.

Plans are being prepared for an addition to be built to the foundry of Chrisman & Goodwin, Morgantown, W. Va.

The George W. Mason Engineering & Mfg. Co. will begin work shortly on a new brass foundry to be built at New Castle, Pa.

The Erie Engine Co., Erie, Pa., is taking bids on a new two-story, brick, steel and concrete power plant to be erected at a cost of $200,000.

The Critchley Machine Screw Co., Worcester, Mass., advises that it expects to install a few more automatic screw machines.

A new building, 62 x 40 feet, with a floor space of 10,000 square feet, will be erected at Erie by Paascy Bros., boat builders.

The Builders' Supply Co., Chehalis, Wash., is having plans prepared for the erection of a new woodworking plant. O. K. Palmer is head of the company.

The R. D. Cole Mfg. Co., Newnan, Ga., plans to rebuild the structure recently burned. The new plant will cost about $15,000. The company manufactures tanks.

Plans are being prepared by the Aluminum Castings Co., New Kensington, Pa., a subsidiary of the Aluminum Co. of America, for a new foundry to be built at that place.

The A. M. Byers Co. has awarded a contract to the Fort Pitt Bridge Co. for a one-story steel warehouse, 100 x 150 feet, to be erected on the Southside, Pittsburgh.

The Springfield Autotruck Co., Springfield, Ore., recently incorporated, plans for the immediate erection of a plant for the manufacture of commercial automobiles. Welby Stevens is president of the company.

The Sharon Building Co., Ltd., has taken over the property of the Sharon Spoke Co., and will add a two-story shop and warehouse to the factory at South Irwin and Budd avenue, Sharon, Pa.

The New York Telephone Co. has awarded a contract to the E. E. Paul Co., Montclair, N. J., for a service building, which will be erected at 9 Baldwin street, East Orange, at a cost of $41,169.

It is expected that the new plant which the Warren Tool & Forge Co. is erecting at Warren, O., will be ready for operation within 30 days. The main building will be 75 x 225 feet.

The Southern Pacific Railroad Co., San Francisco, Cal., has commenced the filling in of land north of its shops at Sacramento, and is said to be planning for the erection of an addition to this plant.

It is reported that plans will shortly be announced for an extensive plant to be erected by the Simplex Automobile Co., in Long Island City, N. Y. The company recently acquired a large plot at Webster avenue and Pomeroy street, that city, for a factory site.

The Peerless Fuller Self-Closing Cock Co., Salt Lake City, Utah, recently incorporated, plans for the immediate erection of a plant on Seventh street for the manufacture of its patented water faucet. F. F. Lecuyer is president of the company.

The Kerite Insulated Wire & Cable Co., Seymour, Conn., advises that the recently completed addition to its plant is 20 x 120 feet. No new equipment, with the possible exception of three braiding machines, will be purchased for the addition.

The Columbia Brass Works, Los Angeles, Cal., is erecting a two-story foundry, 50 x 117 feet. Brass, bronze and aluminum castings will be manufactured for the jobbing trade. A specialty will also be made of bronze automobile bushings.

The West Penn Steel Co. has awarded a contract to the Ft. Pitt Bridge Co. for an addition to its plant at Brackenridge, Pa. The improvement will include an addition, 80 x 436 feet, to the sheet mill building, which will contain three new sheet mills.

The Republic Iron & Steel Co. is understood to be preparing plans for an addition to its butt weld pipe department, at Lansingville, in the Youngstown district, from plans prepared by the company's engineering department.

The Southwestern Sugar Co., Laughlin building, Los Angeles, Cal., has acquired the beet sugar manufacturing plant of the Pacific Beet Sugar Co., at Corcoran, Cal. The company plans for the immediate enlargement of the plant to a capacity of 1,000 tons per day.

The Henry & Wright Mfg. Co., Hartford, Conn., has bought the plant of the Parker Motor Co., at 760 Windsor avenue, Hartford. All fixtures and machinery, as left by the motor company when it discontinued business last August, is included in the purchase. The plant will be remodeled and equipped to meet the

requirements of the machinery manufacturing company, it is said, instead of removing its business to Detroit, as was being seriously considered at one time.

The West Allis Iron Works, West Allis, Milwaukee, has started work on rebuilding the foundry and putting up a new office building to replace the one recently damaged by fire to the extent of $4,000. The plant was established only eight or ten months ago.

As the result of the purchase of a tract of 150 acres of land at Norlina, N. C., it is rumored that the Seaboard Air Line contemplates erecting extensive shops at that place. It is probable that the railroad will remove its Portsmouth and Raleigh shops to the newly acquired site.

The Ohio Crucible Steel Co., Shaw avenue, Cleveland, commenced work on Dec. 29, on a one-story, brick addition, 32 x 64 feet, to its foundry. Air compressors, sand blast and other open-hearth foundry equipment will be required. The purchases will be made by C. J. Wallace, treasurer of the company.

Alonzo Pawling, until recently part owner of the Pawling & Harnischfeger Co., manufacturing traveling cranes, etc., at Milwaukee, is erecting a $50,000 manufacturing building at Clinton and Oregon streets, on the site of the old school of trades for boys. The exact purpose of the building is not yet announced.

Announcement has been made that the Canadian Pacific Railroad Co. will build extensive shops at Calgary, Alberta. Westinghouse, Church, Kerr & Co., 8 and 10 Bridge street, New York, have the general contract, which will require 3,100 tons of structural steel, and a large amount of shop equipment.

The Boston Pressed Metal Co., Worcester, Mass., advises that it is erecting a two-story and basement building, 60 x 80 feet, of mill construction, which will more than double its capacity. It is so designed as to permit the addition of three additional stories when needed. The company has not yet decided on the list of machinery to be required.

The Fairweight Standard Scale Co., Danville, Ill., advises that it will not begin work on its proposed new plant at Gary, Ind., until late in the spring. The plant will be of modern fireproof construction and equipment will be of modern type. Plans are not completed yet. The company will locate its main office in Chicago as soon as building operations are begun.

Government News

Proposals were received and opened by the isthmian canal commission Dec. 30, for furnishing 22 spillway gate machines, complete, except motor, limit switch, counter weight base and blocks, wrenches, wrench board, and hand-operating mechanism, in accordance with circular 661, issued Oct. 31, as follows:

Exeter Machine Works, Pittston, Pa., $82,197.37; Fawcus Machine Co., Pittsburgh, $70,643.68; Howard Iron Wks., Buffalo, $83,418.73; Stacey-Schmidt Mfg. Co., York, Pa., $70,542; Union Foundry & Machine Co., Pittsburgh, $74,431.39; Otis Elevator Co., New York, $89,999.54; Westinghouse Machine Co., E. Pittsburgh, Pa., $98,419.70.

At the same time and place bids were opened for furnishing three pumps, for use in connection with above mentioned gate machines, as follows:

A. S. Cameron Steam Pump Works, New York, $1,695, alternate $1,050; National Electric Supply Co., Washington, $1,089; Henry R. Worthington, New York, $821.25.

The bureau of supplies and accounts, navy department, will receive bids, to be opened Jan. 30, for furnishing materials and supplies, delivered at the various naval stations named, in accordance with the schedules enumerated, as follows:

Drills, twist, high speed, miscellaneous, Washington, 4255.
Hammers, pneumatic, 12, Washington, 4255.

Contracts have been awarded by the bureau of supplies and accounts to various bidders for furnishing materials and supplies to the navy department, for delivery at the stations named, as follows:

Opening Oct. 31.

Schedule 3947, class 1, Mare Island, 2 engine lathes: Niles-Bement-Pond Co., New York, $840.

Opening Nov. 14.

Schedule 4002, class 21, Mare Island, 1 turret lathe, motor driven: Niles-Bement-Pond Co., New York, $840.

Opening Nov. 28.

Schedule 4069, class 21, Norfolk, 1 bolt and rivet forging machine; Acme Machinery Co., Cleveland, O., $2,100.
Schedule 4069, class 22, Norfolk, 4 portable pneumatic geared hoists: Manning, Maxwell & Moore, New York, $732.62.

Opening Dec. 12.

Schedule 4072, class 11, Puget Sound, 1 electric motor truck, 10,000 pounds capacity: Kentucky Wagon Co., Louisville, $2,108.

The bureau of supplies and accounts, navy department, will receive bids, to be opened on Jan. 23, for the purchase of materials and supplies, for delivery at the naval stations named, in accordance with the schedules enumerated, as follows:

Condenser, surface, 1, Norfolk, 4226.
Drill, stationary head, 1, Boston, 4224.
Drill, upright, 1, Boston, 4224.
Exhauster system, 1, Boston, 4227.
Lathe, turret, 1, Boston, 4224.
Machine, cutting, 1, Boston, 4224.
Machine, milling, 1, Boston, 4224.
Machines, sewing, power-driven, miscellaneous, Brooklyn, 4225.
Shaper, crank, 1, Boston, 4224.

Bids were opened Jan. 2, by the bureau of supplies and accounts, navy department, for furnishing materials and supplies for delivery at naval stations, in accordance with the schedules enumerated, as follows:

Schedule 4147, class 61, Norfolk, one set water-tube boilers, 6,400 square feet, total heating surface, wrought steel seamless-header type (alternate bids are for two double-ended boilers, horizontal cylindrical return fireproof type, 4,812 square feet, total heating surface): Babcock & Wilcox Co., New York, $10,550, alternate $7,950; Mosher Water Tube Boiler Co., New York, $19,230; New York Ship Building Co., Camden, N. J., $7,075.

Schedule 4148, class 62, Puget Sound, one set water-tube boilers—specifications similar to class 61, slightly larger; Babcock & Wilcox Co., New York, $12,950, alternate $4,600; Commercial Boiler Works, Seattle, $5,275; Mosher Water Tube Co., New York, $23,751.

Schedule 4151, class 71, Brooklyn, for U. S. S. New York, one complete equipment of steam-driven coaling-gear machinery: Lidgerwood Mfg. Co., New York, $12,749; Newport News Ship Building & Dry Dock Co., $14,310; Williamson Bros. Co., Philadelphia, $12,490.

Schedule 4152, class 81, Brooklyn, for U. S. S. New York, two main feed-water heaters of the multi-coil navy type: Alberger Condenser Co., New York, alternate, $3,130; Griscom-Spencer Co., New York, $2,000; Schutte & Koerting Co., Philadelphia, $2,800; Sanitary Water Still Co., Jamaica Plains, N. Y., $2,741.

Schedule 4153, class 82, Brooklyn, for U. S. S. New York, electrical signal devices: Chas. Cory & Co., New York, $4,255.20; Wesern Electric Co., New York, $5,281.10.

Bids were received by the isthmian canal commission Jan. 3, for furnishing, delivered at Colon, 92 crank-gear recess cover seats, at the prices given below, in accordance with canal circular 667, as follows:

C. D. Eaton, New York, $31,084.80; E. G. Grove, South Bethlehem, Pa., $60,419.01; Exeter Machine Works, Pittston, Pa., $42,320; Mesta Machine Co., Pittsburgh, $46,376; Rosedale Foundry & Machine Co., Pittsburgh, $35,541.20; Standard Foundry Co., Buffalo, $30,421.64; Steacy-Schmidt Mfg. Co., Pittsburgh, $37,250; Sterritt-Thomas Foundry Co., Pittsburgh, $31,736; H. D. Trout Co., New York, $49,128; Union Foundry & Machine Co., Pittsburgh, $37,401.32; United Engineering & Foundry Co., $40,066.

The supervising architect, treasury department, Washington, will receive bids till Jan. 24, for an electric passenger elevator to be installed in the postoffice and courthouse at Ottumwa, Ia.

J. J. Morrow, corps of engineers, United States army, Portland, Ore., will receive bids up to Feb. 9, for the construction of a large steel hull suction dredge, to be used on Coos Bay. Former bids for this work, taken in September, 1910, were above the appropriation, the lowest being $384,000. New specifications have been prepared.

Machine Tools

The specifications on the machine tool equipment for the Scranton, Pa., shops of the Delaware, Lackawanna & Western Railroad Co. are about completed, and are expected to be submitted to New York dealers in a few days. This list will involve about $6,000.

Definite action on the bids submitted about two months ago, on the

New York, New Haven & Hartford railroad's list of shop equipment is still unannounced, but it is known that the matter is in such shape that orders may be placed at any time.

W. P. Trimble, Seattle, Wash., will build new machine shops on Railroad avenue. Permit for the work has been issued.

The city of Santa Ana, Cal., has voted bonds for $200,000 for the erection of a polytechnic high school. A completely equipped manual training department will be installed, the first structure to be erected being a blacksmith shop. A. B. Sturges, Story building, Los Angeles, has been commissioned to prepare plans.

Plans have been completed for the new Chaffey union high school buildings to be erected at Ontario, Cal., and official call will at once be made for bids for construction. The mechanical arts building will comprise nine shop rooms, fully equipped for manual training work, and power plant for the group. J. C. Austin and W. E. Pennell, Wright & Callender building, Los Angeles, are architects.

The most important list of railroad shop equipment that has come into the New York market for a number of years was distributed by the Delaware & Hudson company at the opening of the year. Bids are asked for on about 115 separate items, which aggregate in value approximately $225,000, and all important eastern dealers have been asked to submit figures on the requirements. The equipment is intended for the new shops now under construction at Watervliet, N. Y., and the delivery date will be deferred until it is definitely known when the buildings will be ready to receive the machinery. The general belief is that orders will be received within the next two months, specifying delivery for April or May. The list is as follows:

Lathes

One 26-inch extra heavy duty, all-geared head, engine lathe.
One 16-inch medium duty, all-geared head, engine lathe.
One 20-inch medium duty, all-geared head, engine lathe.
One 42-inch motor driven, rapid production, vertical, turret lathe.
One 90-inch extra high power, heavy pattern, driving wheel lathe.
One 32-inch, extra heavy duty, engine lathe.
One 30-inch, heavy duty, engine lathe.
One 20-inch, medium duty, engine lathe.
One 16-inch, medium duty, engine lathe.
One 20-inch, belt-driven lathe.
One belt-driven, automatic turret lathe.
One No. 56 belt-driven automatic turret lathe.
One 6-inch, motor-driven, turret lathe.
One 42-inch, extra heavy duty, engine lathe.
One 42-inch, extra heavy power, wheel lathe.
One 20-inch, motor driven, massive construction, double axle lathe.
One 30-inch pattern maker's wood lathe.

Drills

One 48-inch, full universal, radial drill.
One 20-inch back gear and power feed drill.
One 60-inch, high speed, high power, plain radial drill.
One 20-inch back gear and power feed drill.
One 48-inch, high speed, high power, plain radial drill.
One special two-spindle radial drill.
One four-spindle stay-bolt drilling machine.

Milling Machines

One No. 3 universal, horizontal, milling machine.
One No. 4 universal, horizontal, milling machine.
One universal, vertical, milling machine.
One No. 4 motor-driven, vertical, milling machine.
One massive construction, motor-driven, horizontal, milling machine.

Grinders

One No. 9, motor-driven, safety grinder.
One motor driven, vertical surface grinder and equipment.
One No. 1 universal tool grinding and shaping machine.
One No. 13 universal and tool grinder machine.
One 18 x 44 x 120-inch, motor-driven, gap grinder.
One motor-driven, link grinder.
One No. 18 double end, pattern maker's disc grinder.

Shapers

One 34-inch, high duty, double triple quick stroke, extension base, crank shaper.
One 20-inch, high duty, double triple quick stroke, extension base, crank shaper.
One 24-inch, high duty double triple quick stroke, extension base, crank shaper.

Boring Mills

One 42-inch, rapid production, boring mill.
One motor-driven horizontal boring mill.
One two-spindle, extra heavy, motor-driven, vertical locomotive boring machine.
One 64-inch, motor-driven, rapid production, boring mill.
One 42-inch, improved high power boring mill with automatic chuck, etc.

Presses

One 50-ton, power, forging press.
Two 30-ton, power, forging presses.
Two No. 3½ arbor presses.
One 750-ton, four-column, flanging press.
One 400-ton, motor-driven, wheel press with all equipment.

Miscellaneous

One 18-inch, motor-driven, high duty slotter.
One 26-inch, motor-driven, high duty slotter.
One 36-inch, single shear and radial crane.
One 60-inch shear of same type.
One 60-inch gap, No. 7R, single punch and self-containing radial crane.
One 60-inch gap, No. 3, same type as above.
One 60-inch gap, No. 2, same type as above.
One 60-inch gap, No. 4, same type as above.
One 36-inch gap, No. 0R, single punch.
One 14-inch gap, No. 3, combination punch and bar cutter and crane.
One 30-inch gap, horizontal punch.
One 36 x 36-inch x 12 feet, massive type, two-head planer.
One 28-inch boiler plate planer, with screw jacks.
One 24-inch, high duty shoe and wedge planer.
One No. 4 power hack saw.
One No. 6 column small saw, belt-driven.
One 2-inch, belt-driven, double-head bolt cutter.
One 1-inch, belt-driven, double-head bolt cutter.
One 4-inch, belt-driven, double-head bolt cutter.
One belt-driven, six-spindle, bolt turning machine.
One six-spindle, stay-bolt, threading machine.
One belt-driven, nut facing machine.
One two-spindle, stay-bolt threading machine.
One 4 x 78-inch, three-cylinder, belt-driven forming roll.
One three-cylinder, 16-foot, boiler plate bending roll.
One 8-foot bending roll.
One portable pipe bending machine.
One 6-inch, motor-driven, pipe machine.
One 2-inch, motor-driven, pipe machine.
One belt-driven, 1½-inch, four-spindle, semi-automatic tapping machine.
One No. 162, belt-driven, squaring shear.
One two-spindle, motor-driven, centering machine.
One No. 3, 15-foot gap, 150-ton hydraulic riveter.
One flue welding machine.
One flue welding furnace.
One flue swedging machine.
One flanging clamp, pneumatic cylinders.
One 8 x 11-foot open forge.
One rail bender.
One 5,000-pound steam hammer.
One oil furnace to serve 5,000-pound hammer.
One 300-pound steam hammer.
One 600-pound steam hammer.
One 18-inch gap, No. 7 shears.
One No. 2 bar shears.
One 4 x 5-foot open cast iron forge.
One 1½-inch forging machine.
One ¾-inch forging machine.
One 4 x 5-foot open forge.
One 4 x 6-foot open forge.
One 5-ton crane.
One No. 2, two-head, horizontal, key-seating machine.
One belt-driven, 2-inch, pointing machine.
One 5 x 6-foot case-hardening furnace.
One No. 11 fan.
One portable oil furnace.
One 48 x 6-inch grind-stone and box mounted on wheels.

Miscellaneous

The city of Vallejo, Cal., contemplates the erection of a municipal electric light and power plant. Professor C. L. Cory, University of California, Berkeley, retained by the city as engineer, estimates the cost at $100,000.

The Portland Railway, Light & Power Co., Portland, Ore., plans for the erection of a new power plant and substation at Portland, to cost about $100,000. B. S. Josselyn is president of the company.

The Wolverine Brass Works, Grand Rapids, Mich., advises that it intends to erect an addition to its plant to cover about 50,000 square feet and will begin work on a part of the new buildings about Feb. 1. The concern is crowded for space at present so that not much new equipment will be required at once. A new modern power plant, however, will be installed. This will have a capacity of about 250 horsepower, but plans for it have not yet been completed.

The McAuley Automatic Steam Trap Co., Pittsburgh, has been awarded a contract for the steam trap equipment of the Chester, W. Va., plant of the American Sheet & Tin Plate Co. Contracts were also received recently from the Cambria Steel Co., Johnstown, Pa.; Pittsburgh Pipe & Equipment Co., Pittsburgh; Louisville, Ky., shops of the Louisville & Nashville railroad; Homestead and Mingo Junction plants of the Carnegie Steel Co. and the Pitcairn, Pa., and the Logansport, Ind., repair shops of the Pennsylvania Railroad Co.

New Buyers

The following manufacturing companies have filed articles of incorporation:

The Victor Machine Co., Webb City, Mo.; $60,000; by J. H. Fritz, J. W. Bosard and P. E. Wecks.

The Power Multiplex Tool Co., Detroit; $20,000; to manufacture special machinery; by Robert M. McKenzie.

The Pacific Clutch Co., Los Angeles; $25,000; by Frank S. Jones, Paul Gardner and Franklin Groocox.

The Blevins Transmission Gearing Co., Amarillo, Tex.; $500,000; by Geo. L. Abbott, J. C. Guest, J. W. Blevins and J. L. Norris.

The American Wire & Fiber Corporation, Albany, N. Y.; $1,000,000; by Thomas Byrnes, Thomas Anderson and John E. Anderson.

The Tolford Mfg. Co., Hartford, Conn.; $25,000; to manufacture hardware; by A. E. Greene, S. B. Greene and H. J. Farrell.

The Thomas Stove Co., Plainfield, N. J.; $100,000; to manufacture stoves, etc.; by Guy H. Hewitt, Theo. E. Johnston, etc.

The Down Trolley Supply Co., Toledo, O.; $20,000; to manufacture all kinds of trolley supplies; by Z. T. Paulin, E. U. Down, W. E. Byers, etc.

The Rochester Hook & Eye Co., Rochester, N. Y.; $40,000; to manufacture hooks and eyes; by H. Satterlee, H. D. Van Duser and J. S. Fitch.

The Inman Mfg. Co., Amsterdam, N. Y.; $300,000; to manufacture box machinery, etc.; by H. Inman, C. H. Inman and R. A. Wood.

The Julian Motor Co., Syracuse, N. Y.; $200,000; to manufacture automobiles, trucks and motor boats; by president, Julian S. Brown.

The Miller-Sandy Machinery Co., Kansas City, Mo.; $10,000; by M. E. Miller, Seth S. Sandy and James H. McVay.

The Hight Mfg. Co., Decatur, Ill.; $20,000; to manufacture metal goods; by Robert L. Hight, Roy R. Wilson, A. B. Holabird, Decatur, Ill.

The Ball-Wood Co., Elizabeth, N. J.; turbines, machines, etc.; by E. C. Ellis, J. M. Ferry and J. G. Shipman, all of Elizabeth.

The Elkhart Iron Works, Elkhart, Ind.; $36,000; to operate a foundry; by directors, W. H. Holland, E. J. Bennett and C. S. Workinger.

The Weger Motor Co., Cleveland; $100,000; to manufacture internal combustion motors; by E. C. Rock, J. B. Seymour, E. A. Williamson, L. M. Lamoreaux and J. R. Updyke.

The Dixie Machinery & Mfg. Co., Jacksonville, Fla.; $25,000; by president, E. Verstraete; vice president, Stephen E. Foster, and treasurer, S. G. Searing.

The Thompson Mfg. Co., Freeport, Ill.; $10,000; to manufacture machinery, etc.; by Clement E. Thompson, Louis Strohacker and Edward Strohacker.

Flanders Electric Vehicles Co. of Canada, Ltd., Walkerville, Ont.; $40,000; by provisional directors, A. D. Green, James R. Choate, Alex. Leslie and others.

The Cutalite Machine Co., St. Louis; $15,000; to do a general machinery and manufacturing business; by Michael J. McEneny, William A. McEneny and William Grafeman.

Brown-McDonald Machinery Co., St. Louis; $10,000; to manufacture machinery; by Charles L. McDonald, Isaac M. Brown and Herman S. Albrecht.

Woodstock Pneumatic Tool & Machine Co., Ltd., Woodstock, Ont.; $40,000; by provisional directors, Dennis W. Karn, Robert G. Bickerton, Wm. G. Parke and others.

Fleming Tank Co., Pittsburgh; $25,000; to manufacture tanks, towers and appliances necessary thereto, etc.; by William C. Jacobs, Lee McKnight, James J. Cosgrove, all of Pittsburgh.

The Sarnia Fence Co., Ltd., Sarnia, Ont.; $500,000; to manufacture wire fences; by provisional directors, John R. Pierdon, Clarence P. Smith, Charles Bolton and others.

Keystone Reamer Co., Millersburg, Pa.; $25,000; to manufacture reamers, etc.; by E. P. Bradenbaugh, Frank K. Lenker, Howard G. Frederick and F. O. Wells, Harrisburg.

Iceless Refrigerator Co., Cleveland; $200,000; to manufacture refrigerating machinery; by A. Y. Garven, W. C. Saeger, H. M. Gallagher, K. I. Sanders and H. B. McGraw.

Modern Die & Plate Press Mfg. Co., Belleville, Ill.; $50,000; to operate a general machine shop; by F. C. Hippler, Henry F. Fink, Geo. B. Rodger.

Ward & Ames Mfg. Co., Manhattan, New York City; $100,000; to manufacture apparatus to regulate furnace drafts, etc.; by J. Carlton Ward, Walter W. Ames, Diedrich H. Ward, all of 31 Nassau street, New York City.

John Deere Plow Co. of Welland, Ltd., Welland, Ont.; $250,000; by provisional directors, Wm. Butterworth, Willard L. Velie, Geo. W. Mixter, Burton F. Peck and Paul Arbenz.

A. H. Winber Joyner, Ltd., Toronto, Ont.; $40,000; to manufacture electrical and mechanical apparatus; by provisional directors, A. H. W. Joyner, Arthur V. Walker, Frederick W. Walker and Edith J. Joyner.

Windsor Auto Axle Co., Ltd., Windsor, Ont.; $15,000; to manufacture automobile accessories; by provisional directors, Lester D. Cooley, Alex. J. Campeau, James W. Kerr and D. Gourd.

The A. W. Parks & Son Co., Ltd., Petrolia, Ont.; $20,000; to manufacture gas and gasoline engines; by provisional directors, Albert W. Parks, Arthur C. Dodds and Franklin C. Parks.

The Humphrey Pipe & Foundry Co., Bellefontaine, O.; $10,000; to conduct a foundry and machine shop; by Charles S. Humphrey, Harry H. Morrow, Nellie D. Morrow, F. D. Batch, Eva D. Humphrey.

Avenmarg & Carter Machine Co., Cleveland; $10,000; to manufacture metal specialties, dies and machine work; by Wm. A. Avenmarg, Reuben C. Carter, M. Koch, L. E. Cannon and Wm. E. Patterson.

The Sturdy Smokeless Furnace Co., Buffalo, N. Y.; $100,000; to manufacture furnaces and boilers; by J. Sturdy, F. A. Shoemaker, Buffalo, etc. Offices at 21 Builders' Exchange building, Buffalo.

The Tri-Prong Hair Pin Co., Camden, N. J.; $185,000; to manufacture hair pins, hooks and eyes, etc.; by Louis C. Belz, Isaac Collins and John D. McMullin, all of 522 Market street, Camden.

The Davis Carriage Co., East Orange, N. J.; $125,000; to manufacture

carriages, wagons, omnibuses, carts, trucks, etc.; by Chas. O. Geyer, Frank E. Ruggles, L. Matthews, all of 525 Main street, East Orange, N. J.

The Shartle Bros. Machine Co., Middletown, O.; $100,000; to manufacture all kinds of tools, machinery and appliances; by Charles W. Shartle, Lucy C. Shartle, H. D. Martindale, G. Kaffenberger and A. B. Morgan.

Lebanon Steel Foundry Co., Lebanon, Pa.; $20,000; to manufacture iron and steel, or both, casting and forgings, etc.; by Thomas S. Quinn, William H. Worrilow, W. Lloyd Wolfe, all of Lebanon, Pa.

A. & H. Foundry Co., Hamburg, Berks county, Pa.; $5,000; to manufacture iron, steel, or both, any other metal, castings, forgings, etc.; by Edgar Amole, Reading, Pa.; B. Frank Harpel, Topton, Pa.; George W. Rau, Hamburg.

The Adirondacks Snow Packer Co., Malone, N. Y.; $12,000; to manufacture machines for cleaning snow from roads, and road machinery; by Frank Alexander, Gabriels; B. A. Muncil, Paul Smiths and John B. Hinds, Malone.

The Kerosene Gas Producer Co., Manhattan, New York City; $50,000; to manufacture engines, gas producers, oil converters, etc.; by M. A. Noble, 25 Broad street, New York City; J. W. Ebbs, Englewood Cliffs, and A. A. Kelley, Montclair, N. J.

The H. M. Hughson & Co., Newark, N. J.; $25,000; mechanical engineers, machinists, tool makers, etc.; by Harry M. Hughson, 237 Halsey street; Otto H. Oppenheimer, 382 Frelinghuysen avenue; Arthur M. Lafayette, 382 Frelinghuysen avenue, Newark, N. J.

Read & Morrill, Inc., Brooklyn; $100,000; to manufacture molds, molding machinery, builders' supplies, hoisting and elevating machinery; by Henry P. Read, 32 Sanford street, Brooklyn; Milton D. Morrill, Conway, N. H.; Herbert A. St. George, 41 Park Row, New York City.

Defiance Mfg. Co., Philadelphia; $50,000; to manufacture machines, machinery of all kinds and parts thereof, etc.; by Richard Marx, 4736 D street, Philadelphia; Charles McGonigal, 1530 Cherry street, Philadelphia; Paul M. Rosenway, 1425 Spruce street, Philadelphia.

General Industrial

The Chicago Insulated Wire & Mfg. Co., Chicago, has moved to Sycamore, Ill.

The Scientific Heater Co., Cleveland, has increased its capital stock from $10,000 to $50,000.

The Auto Axle Co., Grand Rapids, Mich., has been incorporated with $24,000 capital.

The Detroit Pressed Steel Co., Detroit, has increased its capitalization from $110,000 to $200,000. Heavy stampings are manufactured.

A. L. Barker, formerly engaged in the scrap iron business at 149 Broadway, New York, is now operating a gray iron foundry at Boonton, N. J.

The Bay State Brass Co., Haydenville, Mass., manufacturer of plumbers' brass goods, advises that it has installed eight new furnaces which will enable the company to double its output.

Machinists employed at the Norfolk navy yard have gone out on strike against the navy department's proposition to have the men sign cards preliminary to installing scientific management in the navy yard shops. The government does not regard the strike seriously.

The next triple convention of the American Supply and Machinery Manufacturers' Association, the National Supply and Machinery Dealers' Association and the Southern Supply and Machinery Dealers' Association, will be held at Norfolk, Va., on May 13, 14 and 15, 1912.

The Muncie Ornamental Iron Works, Muncie, Ind., has taken over the old plant of the C. Hanika & Sons Co., of that city, manufacturers of structural iron and steel, builders' supplies, ornamental iron, fire escapes, etc., and will continue along the same lines.

William E. Headley has been appointed receiver of Wetherill Bros. Machine Co., Chester, Pa., at the suggestion of certain creditors. This followed the application filed at Philadelphia of a petition in bankruptcy by Isaac Wetherill, surviving partner of the concern.

The E. B. Andes & Co., Lancaster, Pa., manufacturers of patterns, dies and special machinery, advises that it will not build at the present time, and that no new equipment will be needed. The company's output principally is aluminum match plate patterns. The officers are: President, E. B. Andes; vice president, Harry Urlass, and treasurer, William S. Cleim.

Final report of the receivers for the Platt Iron Works, Dayton, O., has been made to the federal district court at Cincinnati. Receivers Young and Boardman served from July 25, 1911, until the trustees were named on Nov. 20. The report places the value of the works at $1,688,374. They ask the court to fix their fee ranging from $17,811 to $22,900.

The American Steel Co., Pittsburgh, has purchased a wire nail plant at Ellwood City, Pa., and will remodel it to an 80-machine nail plant. The site covers about five acres, and has a frontage of 1,000 feet on four lines of railway. At present, and until the improvements have been made, the plant will make nails from wire, but by the first of next April it will be making the nail from the rods.

The Universal Nut & Bolt Lock Co., Newport, Ky., the incorporation of which was recently noted, advises that it is building a three-story brick building, 40 x 75 feet, and that its output will be nut locks that can be universally used any place where there is a bolt and nut. A case hardening plant is also being installed, and the company will also be in a position for coloring small articles. All of the machinery for the entire plant has been purchased.

Trade Notes

The Warren Tool & Forge Co., Warren, O., has opened an office in the Bessemer building, Pittsburgh.

The Pressed Steel Car Co., Pittsburgh, has abolished its St. Louis office. It has opened one in the Old Colony building, Chicago, instead.

The Hilles & Jones Co., Wilmington, Del., manufacturers of machine tools, has opened a new office in room 201 Oliver building, Pittsburgh, with William H. Connell Jr., in charge.

Fires

The White Steel Furniture Co., Grand Rapids, Mich., was recently badly damaged by fire.

Fire on Dec. 10 partly destroyed the plant of the Round Oak Stove Works, at Dowagiac, Mich.

Fire at the plant of the West Allis Iron Works, West Allis, Wis., on Dec. 26, caused probably $1,500 damage.

Two buildings of the Sanderson Steel Co., Syracuse, N. Y., were badly damaged by fire on Dec. 18. Loss, $40,000.

The plant of the Co-Operative Foundry Co., Troy, O., was damaged to the extent of $10,000, by a recent fire.

The machine shop of the Empire Engineering Co., Gasport, N. Y., was damaged to the extent of $10,000, by a recent fire.

The car shops of the New York Central railroad at Albany, N. Y., were damaged to the extent of $25,000 by a recent fire.

Fire of unknown cause badly damaged the main building of the Millbury Machine Co., Millbury, Mass., Dec. 15, the loss being about $3,000. The plant is owned by W. B. Harris.